1979

Louisiana agriculture, 1940-1977: economic trends and current status

Stephen Douglas Reiling

LOUISIANA AGRICULTURE

Economic Trends And Current Status

1940-1977

Stephen D. Reiling
Fred H. Wiegmann

Bulletin No. 718 June 1979

LOUISIANA STATE UNIVERSITY
AND AGRICULTURAL AND MECHANICAL COLLEGE
Center for Agricultural Sciences
And Rural Development

AGRICULTURAL EXPERIMENT STATION
DOYLE CHAMBERS, DIRECTOR

CONTENTS

ACKNOWLEDGMENTS

The authors wish to acknowledge the assistance of several colleagues. Dr. Lonnie Fielder provided valuable assistance in compiling data presented in the bulletin. Dr. Paul Roy and Dr. Leo Guedry contributed to sections of the bulletin. Mr. Robert Boucher assisted with data tabulation and verification. Appreciation is also expressed to Nancy Roshto and Valinda Gallow who, respectively, prepared graphs and figures in the publication and typed several drafts of the manuscript. Ms. Brenda Altazan typed the final draft and corrections. Appreciation is expressed to Dr. Joe R. Campbell, Dr. Clyde St. Clergy, and Ms. Jane Ottenhouse who reviewed the manuscript and made many valuable suggestions. A special acknowledgement is due Dr. Floyd Corty who reviewed the manuscript, made editorial changes, contributed to sections of the bulletin, and helped prepare the final draft for publication.

PREFACE

In 1962, the Louisiana Agricultural Experiment Station published Bulletin 550 describing Louisiana Agriculture and changes that had occurred between 1930 and 1960. Because of a continual demand for general information on Louisiana agriculture, this bulletin updates the earlier version for the period 1940 to 1977 — highlighting changes since 1940 and the current status of the agricultural sector in the state. The writing is nontechnical and provides general information without attempting to explain in detail the many and complex factors that have caused the changes.

One objective of the bulletin is to correct some general misconceptions about agriculture. People note a decrease in farm numbers and some conclude that agriculture is a declining industry. *That is not correct. Agriculture is an important and, by many measures, a growing industry in Louisiana.* Value of output is increasing, farms are becoming more efficient, the average size of farms is increasing and cropland acreage has increased. Investment in machinery and equipment has increased tremendously as they have become increasingly sophisticated and costly. Farmers are better educated and have become better managers, more versatile in their production and marketing decisions. For example, they increased soybean acreage from around 200,000 acres in 1960 to over 2,900,000 acres in 1978, one of the most sudden and profitable revolutions in Louisiana agricultural history.

Costs of production have increased greatly over the years. Farmers' purchases of inputs, as well as marketing of farm products, has created a large and complex supply-marketing "agribusiness" sector which contributes heavily to off-farm but agriculturally oriented employment and income in Louisiana.

Agriculture is an industry based on renewable resources. With proper management, resources required for agriculture will be conserved for future production, and the agricultural sector of the economy will continue to grow. Though major changes have occurred in Louisiana agriculture in recent years, most of the changes have increased the industry's economic viability and provide a solid foundation for a continuing contribution to the state's economy.

Louisiana Agriculture 1940-1977 Economic Trends and Current Status

Stephen D. Reiling and Fred H. Wiegmann*

I. INTRODUCTION

Agriculture has made an important contribution to Louisiana's economic growth and history. Though the state's economy has become more diversified in recent years, many measures show that agriculture ranks as one of the state's most important economic activities. Annual cash farm income in Louisiana averaged more than one billion dollars from 1972 to 1977. Agriculture is the base for a very large and complex supply-marketing "agribusiness" sector involved in advertising, insuring, processing, storing, transporting, and selling farm supplies and farm products. Like farming, the agribusiness sector is growing and becoming increasingly sophisticated as it provides necessary support for the farm sector of the state's economy. *Renewable* agricultural resources serve as a basis for future production and enhance the continuing importance of agriculture to Louisiana's economic future. Agriculture's contribution to the state's economy may become even more important as the ratio of tillable land to population decreases and world requirements for food and fiber continue to increase.

Purpose of the Study

Agriculture is a dynamic industry. Significant changes have occurred in agriculture over the years. Total land in farms has remained relatively constant, and cropland has increased. There has been a major decrease in the number of farms but the remaining farms have increased in size over time. Agricultural production has become more mechanized, more capital intensive, more sophisticated, and much more complex. These changes have resulted in a larger dollar volume of output and a more efficient

*Former Assistant Professor, and Professor and Head of Department, respectively, Department of Agricultural Economics and Agribusiness, LSU Agricultural Experiment Station, Baton Rouge.

commercial agriculture in Louisiana.

Other adjustments have also occurred. Some crop and livestock enterprises have increased in importance while others have declined. Increased specialization and technological advances, within the agricultural production sector, have led to the development of a large agribusiness sector to service the needs of commercial farms in Louisiana.

While the examples cited do not exhaust the type of changes that have occurred, they illustrate the dynamic nature of Louisiana agriculture. The purpose of this study is to describe some of the significant changes that have taken place in recent years and the current status of agriculture in Louisiana. Data compiled from several sources illustrate the adjustments that have occurred over time. The time period considered in this study is 1940 through 1977, with emphasis on the period 1960-1976. (There may be occasional reference to 1978, for which data is yet incomplete.) An attempt has been made to identify the various sources of data used in the study.

This study does not provide a detailed explanation of the reasons for adjustments that have taken place since 1940. A detailed analysis of the complex economic, physical, and institutional factors underlying the changes would require a much lengthier and more technical approach. Instead, this report simply reviews statistical "highlights" and provides a general overview of the agricultural-agribusiness sector in Louisiana.

Organization and Scope of the Bulletin

Agricultural production in Louisiana is influenced by both natural and economic factors. These factors are discussed separately in Section II as they largely determine the character of the major farming areas in the state.

General data relating to Louisiana agriculture are presented in Section III. Farming areas, trends in farm numbers, and size and tenure patterns are discussed, as well as economic data pertaining to farm income and production costs.

The discussion in Sections IV and V focuses on trends in crop and livestock production in Louisiana. Data on acreage, yield, production, and location of production are presented for each of Louisiana's major crops. Similarly, livestock numbers, production, and location of production are also discussed.

Forestry, an important sector of agriculture, is discussed in Section VI. Section VII consists of a discussion of aquaculture, and Section VIII covers the "agribusiness" sector, which is growing rapidly in size and importance. The discussion focuses on the breadth of the agribusiness sector and its relationship to the total agricultural industry in Louisiana. The impact of technological and social change on rural areas is explored in Section IX. A summary and conclusions are presented in Section X.

II. FACTORS INFLUENCING LOUISIANA AGRICULTURE

Natural Factors

Climate

The geographic location of Louisiana in subtropical latitudes and its proximity to the warm waters of the Gulf of Mexico have a major influence on the climate of the state. Various surface features, such as lakes, streams, marshes, and elevation also influence local weather patterns. Summer weather in Louisiana is dominated by moist maritime tropical air carried over the state by prevailing southerly winds. The warm moist air creates conditions favorable for afternoon and evening thundershowers. Occasionally, westerly winds carry hotter and drier air into the state.

During the cooler seasons of the year weather conditions are more variable as the state is subjected alternately to warm tropical maritime air and cold polar continental air. Although warmed considerably by its southern movement, cold air sometimes causes large and sudden decreases in temperature. Louisiana is south of the regular track of large moisture-bearing storm centers. However, they occasionally influence the weather and usually result in extended periods of overcast skies and steady rain.

Temperature

Summer temperatures in Louisiana normally range from 85° to 95° F. during the afternoons and from 65° to 75° F. during the early morning hours. Winter temperatures usually vary from 55° to 65°F. during the afternoons and from 40° to 50° F. in the early morning hours. Extreme variations in temperature are not common in Louisiana. The highest temperature recorded in the state was 114° F. on August 10, 1936, at Plain Dealing in Bossier Parish. The lowest temperature recorded was –16°F. on February 13, 1899, at Minden, in Webster Parish. The southern part of the state is usually cooler during the summer and warmer during the winter than the northern part because of the stronger influence of the Gulf of Mexico.

Mild temperatures are important to Louisiana agriculture since they result in a relatively long growing season (see Figure 1). The growing season, or the number of days between the last freeze in the spring and the first freeze in the fall, varies from about 220 days in the northern part of the state to 350 days in the extreme south. Semi-tropical crops such as citrus fruits and sugarcane are grown primarily in the southeastern and south-central part of the state because of the relatively long growing season. In contrast, crops grown in the northern part of the state generally do not require as long a growing season.

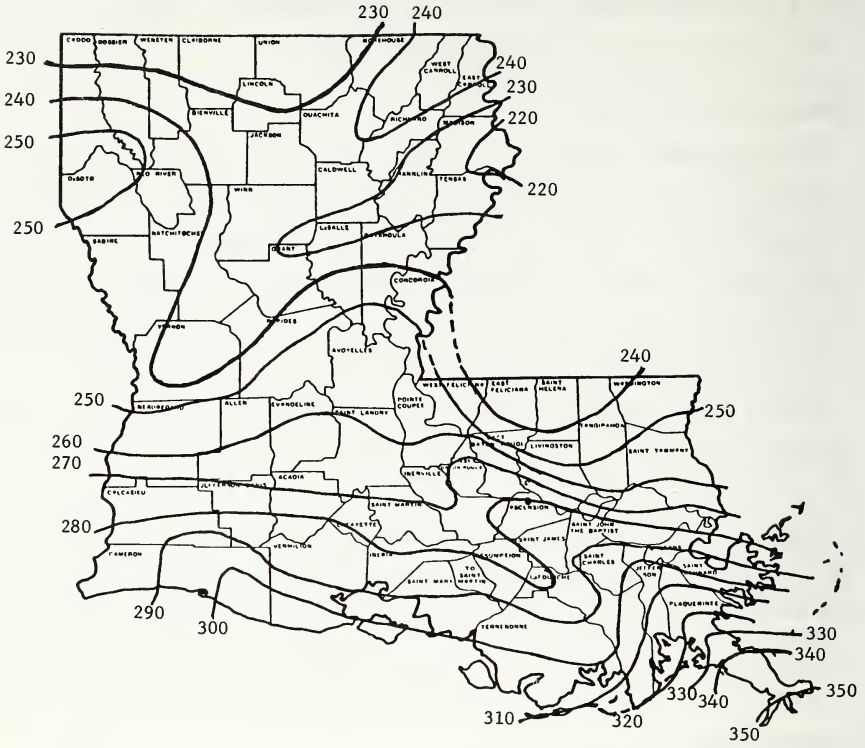


Figure 1.—The average length of the growing season in Louisiana (days).

Precipitation

Louisiana has one of the highest annual rates of rainfall of all states (see Figure 2). Annual rainfall varies from 48 inches in the northwest to 64 inches in the southeast. In general, precipitation increases as one moves from north to south and from west to east because of the influence of the warm moist air from the Gulf of Mexico. Precipitation occurs throughout the year; however, the summers are usually wetter and thundershowers occur frequently in the southern area. Periodic droughts occur occasionally throughout the state, however. Autumn is generally somewhat drier than the other seasons of the year.

Although adequate rainfall is essential, too much precipitation can hamper agricultural production. Extended periods of rain at planting time can force farmers to alter cultivation plans and crop selection, and excessive rain in the fall can interfere with harvesting. Occasional hurricanes, periods of very heavy precipitation, and infrequent freezes may also cause severe crop damage.

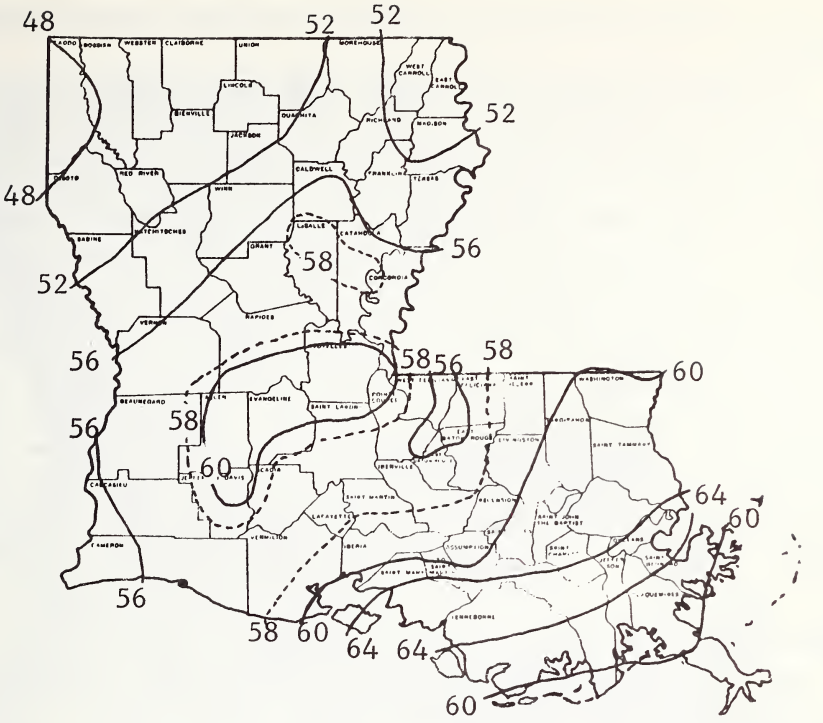


Figure 2.—Normal annual precipitation in Louisiana (inches).

Geography

There are approximately 31 million acres of total area in Louisiana. The lakes, streams, and other water bodies account for about 2.7 million acres or about 9 percent of the total area. Salt water and fresh water marshlands in the extreme southern part of the state cover about 3.7 million acres; thus, water covers about 20 percent of the total area of Louisiana.

Geologically, Louisiana is a newly formed area, and its soils were formed as submarine deposits. Five physiographic classifications exist in the state: uplands, bluffs, alluvial plains, prairies, and marshes, each formed in successive stages in the geological process.

The uplands consist of low, rolling, pine-covered hills and are designated "uplands" only in contrast to the low-lying land in the rest of the state. The highest elevation in Louisiana is 535 feet at Driskill Mountain in Bienville Parish. The uplands are located in three areas: north of Lake Pontchartrain and east of the Mississippi River, west of the Red River, and in the northcentral part of the state, between the Red and the Ouachita

rivers. Livestock and forestry are the primary agricultural enterprises in the uplands.

The bluffs are on the southern fringe of the uplands, while the alluvial plains are in the flood plains of rivers, particularly the Mississippi, the Ouachita, and the Red River. A major part of crop production in Louisiana takes place in the alluvial plains. Prairies are most common in the southern part of the state, especially the southwest. The prairies also are important areas for agricultural production, especially rice, soybeans, and cattle. There is some agricultural production on land bordering the Gulf of Mexico and classified as "coastal marshland" soils (Figure 3). Rice is grown within a few miles of the Gulf and native cattle graze the marshlands in southwest Louisiana. Sugarcane is grown within sight of the Gulf in the southcentral area. Citrus fruit is grown along the Mississippi, which flows through the marshlands that extend more than 100 miles below New Orleans. The marshes of south Louisiana also provide habitat for fish, shrimp, crabs, and other seafood, as well as alligators, fur-bearing animals, and ducks and geese. There are several wildlife refuges in the marsh areas.

Soil Types

The general soil areas in Louisiana are shown in Figure 3. Soil fertility varies throughout the state. Some of it is low in natural fertility, especially the soils of the upland regions. On the other hand, the soils in the deltas of the Mississippi, Red, and Ouachita Rivers have a high plant nutrient level. The soils of the prairie area in southwest Louisiana are clay and clay loam. They also have an impervious base which, combined with an adequate water supply, is ideal for rice production. Peat-like soils exist in the coastal marshes.

Economic Factors

Economic factors also influence agricultural production in Louisiana. The availability of required resources and principles of economies of size and comparative advantage are especially important. Resources, or factors of production, are usually classified in four categories: land, labor, capital, and management. Each category is discussed below.

Land

As noted earlier, water bodies and marshlands account for about 20 percent of Louisiana's 31 million acres of surface area. Urban and built-up areas occupy about a million acres, and 15 million acres are forested. Forest lands account for more than 50 percent of the total land area in

Figure 3.—General soil areas in Louisiana.

GENTLY SLOPING TO HILLY COASTAL PLAIN - Shubuta, Ruston, Bowie, Lucy, Troup, Kirvin, Nacogdoches, Susquehanna, Ora, Sawyer, Boswell

LOESSIAL HILLS AND MISSISSIPPI TERRACES - Olivier, Loring, Memphis, Providence, Lexington, Calhoun, Jeanerette

FLATWOODS AREAS - Caddo, Beauregard, Acadia, Frost, Calhoun, Zachary, Wrightsville

COASTAL PRIARIES - Crowley, Midland, with Beaumont, Bernard, Acadia

RECENT ALLUVIUM (MISSISSIPPI RIVER ALLUVIAL SOILS) - Sharkey, Mhoon, Commerce, Tunica

RECENT ALLUVIUM (ALLUVIAL SOILS OF THE RED AND OUACHITA RIVERS) - Moreland, Norwood, Yahola, Perry, Portland

COASTAL MARSHLANDS - Marsh Peats, Mucks, Clays, and Harris, with Swamp Peats, Mucks, and Clays

Source: Lytle, S. A., Morphological Characteristics and Relief--Soils in Louisiana, Bulletin No. 631, Louisiana Agricultural Experiment Station, November, 1968.

Louisiana. Farm lands account for 9.1 million acres, or about 31.7 percent of the total land area.

Data in Table 1 show that there was a decrease in total land in farms during the period 1964-1974. Farmland acreage in 1974 was about 1.3 million acres less than in 1964. However, there was an *increase* in total cropland and harvested cropland during the decade. Harvested cropland in Louisiana increased 36 percent during the period. While harvested cropland accounted for only 25.7 percent of the total land in farms in 1964, it comprised 39.7 percent of total farmland in 1974. In comparison, there was a large decrease (48 percent) in the number of acres of woodland and woodland pasture between 1964 and 1974. The increase in cropland indicates that Louisiana farmland is being used more intensively now than it was in 1964, partly because woodland and woodland pasture has been converted to soybean production.

Land is a fixed resource. Continued population and industrial growth in Louisiana will increase competition for land in the future. This may affect agriculture in some areas of the state. For example, agriculture may be crowded out of fringe areas around major population centers. Industrial development on both banks of the Mississippi River, between Baton Rouge and New Orleans, will continue to displace some agricultural production. Development on the west side of the Atchafalaya Basin, between Lafayette and Morgan City, may also gradually displace agriculture.

While urban and industrial growth will influence agricultural production in local areas, these factors should not cause major problems for Louisiana agriculture in general. Most of Louisiana's farmland is located in predominantly rural areas, and the long range outlook for converting new land to agricultural production is good.

Labor

Historically, Louisiana agriculture was labor intensive. Large amounts of labor were required for the production of sugarcane and cotton, particu-

Table 1.—Farm land use in Louisiana for selected years

Category	1964	1969	1974
	Acres		
Total Land in Farms	10,411,500	9,788,662	9,133,275
Total Cropland	4,864,405	5,842,350	5,590,448
Cropland Harvested	2,672,650	3,443,108	3,628,199
Cropland Used Only for Pasture	1,739,150	1,647,747	1,426,704
Other Cropland	452,605	751,495	535,585
Woodland Including Woodland Pasture	2,966,200	1,916,311	1,531,661
All Other Land	2,580,145	2,030,001	2,011,126

Source: Compiled from *Census of Agriculture* for the designated years. (Acreage for "Land in Farms" reported by the Crop and Livestock Reporting Service, USDA, is greater than census figures.)

larly during planting and harvesting. However, increased mechanization has significantly reduced labor requirements for these crops, although others still require large amounts of labor. For example, production and harvesting commercial vegetables, sweet potatoes, and strawberries is still largely labor intensive in Louisiana.

It is difficult to estimate the size of the farm labor force in Louisiana because it varies throughout the year in relation to the peak and off-peak labor demand periods on farms. Data in Table 2 indicate the number of workers on farms for selected months in 1975. The total farm labor force ranged from 54,000 in January to 76,000 in July. The number of family workers was highest in July, during school vacation. The number of hired farm workers was highest in October, the peak of the harvest period for many of Louisiana's crops.

According to the Louisiana Department of Employment Security, the use of seasonal or part-time agricultural labor has declined in recent years. Seasonal employment averaged about 6,340 workers per month in 1971 compared to only 3,625 workers in 1975. October and November traditionally have been the peak months for seasonal labor. The trend toward larger, more mechanized farms has contributed to the decline in total seasonal employment.

In the past, interstate migratory labor made up a large part of the seasonal work force in Louisiana. Since 1975, however, very few migratory workers have been employed in the state; however, some migratory labor was employed during the strawberry harvest in 1975.

Modern farming practices require the use of increasingly complex equipment, which in turn increases the need for more highly skilled farm labor. Workers with the necessary skills are difficult to find at the prevailing wage rate. Therefore, farmers tend to recruit semi-skilled or unskilled workers with ability to learn the required skills. However, upon becoming skilled, many of the workers leave agricultural employment for higher paying jobs in other industries. This has resulted in an uncertain labor supply for farmers and has added emphasis to the trend toward increased mechanization.

Table 2.—Number of workers on Louisiana farms during selected months in 1975

Type of Labor	Month			
	January	April	July	October
Hired	17,000	20,000	22,000	27,000
Family	37,000	50,000	54,000	41,000
TOTAL	54,000	70,000	76,000	68,000

Source: Compiled from various issues of *Farm Labor*, Statistical Reporting Service, Crop Reporting Board, U.S. Department of Agriculture.

Farm wage rates in Louisiana have increased significantly since 1960. In July, 1960, the average hourly wage rate was 62 cents, compared with an average $1.02 per hour for the United States. Farm wages in Louisiana were among the lowest in the nation in 1960. However, in July 1976, the average hourly wage rate in Louisiana was $2.11, compared with a national average of $2.29. At least 20 other states had a lower average farm wage rate than Louisiana in 1975. Of the 13 states in the southeast and south-central parts of the United States, only Florida and Oklahoma had an average wage rate that was higher than that reported for Louisiana. In 1975, hired agricultural workers in Louisiana received $64.9 million in wages. This does not include wages paid to farm operators or their families.

Capital

The trend toward larger farms and the adoption of improved technology have increased the importance of capital as a resource in commercial agriculture. The most important source of capital for farm mortgage or real estate loans in 1976 was the Federal Land Bank System, as shown in Table 3. Life insurance companies ranked second in importance, followed by individuals and commercial banks.

The growth in farm real estate debt in Louisiana since 1960 has been dramatic. The 1975 farm real estate debt was more than five times larger than in 1960. This does not, however, mean that Louisiana farmers have an excessive debt burden. It has been estimated that the value of real estate debt in the U.S. and in Louisiana was about 15 percent of the value of land, buildings, machinery, and equipment on farms in 1977. In other words, farm proprietors' equity was about 85 percent of the value of farm holdings. The average value of assets on Louisiana farms in 1977 was $206,977. Debt amounted to $31,432. Farm equity was $175,545 for a debt-asset ratio of 15.2. For comparison, average assets per farm for the

Table 3.—Louisiana farm real estate debt, by lender group, for selected years

Lender Group	Year				
	1960	1965	1970	1975	1976
	1,000,000 dollars				
Federal Land Banks	33.1	58.2	138.4	273.2	291.2
Life Insurance Companies	24.1	55.6	139.1	155.9	167.1
All Banks	30.0	47.7	70.1	120.5	123.3
Farmers Home Admin.	9.3	17.6	31.3	43.3	47.3
Individuals & Others	38.3	53.5	73.5	121.3	145.8
TOTAL	134.8	232.6	452.4	714.2	774.7

Source: *Agricultural Finance Statistics*, Economic Research Service, U.S. Department of Agriculture, Washington, D.C., July 1976 and for 1976 *Farm Real Estate Debt*, Statistical Bul. #16, Economic Analysis Division, Farm Credit Administration, January, 1977.

U.S. were $241,461, debts were $37,935, and equity was $203,526, for a debt-asset ratio of 15.7 in 1977.[1] In general, farmers own a larger portion of total capital assets than most non-farm business operators.

The average interest rate on farm real estate loans outstanding in the Delta States (Arkansas, Mississippi, and Louisiana) was 7.1 percent in 1975, compared to a national average rate of 6.7 percent. Only the Southeast Region had a higher average interest rate (7.2 percent) than the Delta States. The average interest rate in the Delta States has increased steadily from 5.2 percent in 1959.

Non-real estate loans to Louisiana farms in 1975 totaled about $337.7 million. These loans were for operating capital and other short-term uses. Commercial banks and production credit associations were the leading lending institutions for non-real estate loans. They provided $155.9 million and $149.3 million, respectively, to Louisiana farmers.

Management

Management, like land, labor, and capital, is a resource. The owner-operator of a family farm is a decision-maker or manager as well as a laborer. While labor input can be measured fairly accurately, the management function cannot be measured precisely. Managerial ability varies among individuals, and it is difficult to make general statements or quantitative assessments of farm management input. For example, a farmer driving his tractor while plowing may also be making mental plans for another farm operation the next day or a month later, or he may be deciding to plow deeper or shallower or wider. That is management. It is difficult, in this example, to separate management from labor and attach a value to management. However, improved education and training of farmers in recent years has increased the number of good managers. Many young farmers have acquired a college education to help prepare them to manage and operate their farms effectively.

The management function is very important in agriculture. Basically, the owner-operator of a family farm performs three managerial functions: supervision, coordination, and entrepreneurship. Supervision consists of overseeing the day-to-day operations of the firm and insuring that each task is performed correctly. Coordination is broader in scope; it involves planning and integrating tasks to insure that the necessary resources required to accomplish them are available in sufficient quantity and at the proper time. The essential feature of coordination is that every decision must be made in relation to all other decisions already made or likely to be made.

---

[1] *Balance Sheet of the Farming Sector,* Supplement #1, Agriculture Information Bulletin No. 416, ESCS, USDA, October, 1978.

Entrepreneurship involves making major decisions and broad adjustments regarding total resources use on farms, such as the choice of enterprises, when and how to sell the output, and the level of technology to be used. Furthermore, it involves bearing the risk and uncertainty of the outcome associated with those decisions that influence financial success or failure of the firm. The owner-operator of the family farm must bear these risks, in addition to performing the functions of laborer, supervisor, and coordinator.

Other Economic Factors

Availability of resources is not the only economic factor that influences agricultural production. The concepts of "comparative advantage" and "economies of size" are especially useful for understanding some of the conditions and trends in agriculture.

Significant differences in climate, soil types, and topography result in specialization in agricultural production. That is, production of a particular crop or livestock product is often concentrated in a certain area of the state. The principle of comparative advantage helps to explain why this specialization occurs as well as which crop or livestock product should be produced in a given region. According to this principle, a region should specialize in the production of that product for which it has the greatest absolute advantage or the least comparative disadvantage. For example, suppose one region cannot achieve yields as high as other regions. This disadvantaged region should specialize in the production of the product in which it comes closest to achieving the yields in other areas. Similarly, a region that can produce higher yields for all crops should specialize in the one in which its yield advantage is greatest. Organizing production in this manner results in a net increase in the aggregate output of agricultural production in the state and enhances Louisiana's terms of trade with other areas.

Economies of size is an economic concept that refers to the reduction in cost per unit of output often resulting from increases in the quantity of resources employed to produce the product. That is, the average total cost of producing a unit of output declines as a farm increases in size, at least up to a certain size producing unit. This is due to the increased feasibility of introducing more efficient production methods and increased specialization of the labor tasks. Increasing the size of a farm allows the farmer to spread his fixed or overhead costs over more units of output, thus decreasing the cost per unit. This is important because fixed costs account for a large part of the total cost of producing agricultural products. Economies of size has been a major factor behind the trend toward larger farms in recent years.

III. GENERAL DATA ON LOUISIANA AGRICULTURE

Farming Areas in Louisiana

The physical and economic characteristics described above influence the organization and location of Louisiana agriculture. Nine different "type-of-farming" areas in the state have been defined. A farming area is defined as an area consisting of a generally similar pattern of agriculture production. The area boundaries shown in Figure 4 do not precisely define farming areas in Louisiana because they use parish boundaries. Farming area boundaries usually exist where there is a distinct change in topography or soil type, which rarely occurs along parish boundaries. However, the map provides a generally useful indication of the location of farming areas within the state.

Each farming area is characterized by a different set of major agricultural enterprises. For example, sugarcane, rice, oranges, and strawberries are produced in separate and distinct areas. Other enterprises may traverse several areas that possess the physical characteristics required for production. Major enterprises typically found in the various farming areas are summarized below:

1. **Western Dairy, Poultry, Livestock, and Pine Area:** Timber, milk, broilers, sheep and lambs, cattle and calves.
2. **Red River Cotton, Cattle, and Soybean Area:** Cotton, soybeans, cattle and calves, corn, hogs and pigs, pecans, wheat, sorghum, hay, horses.
3. **North Central Dairy, Poultry, and Pine Area:** Timber, peaches, eggs, broilers, hogs and pigs, Irish potatoes, cattle and calves, horses.
4. **Mississippi Delta Cotton, Soybean, and Beef Area:** Cotton, soybeans, corn, hogs and pigs, wheat, sorghum, cattle and calves, Irish and sweet potatoes, pecans.
5. **Southwest Rice, Soybean, Beef, and Dairy Area:** Rice, soybeans, cattle and calves, milk, sheep and lambs, horses, corn.
6. **Central Mixed Farming Area:** Corn, soybeans, cotton, rice, sugarcane, sweet and Irish potatoes, cattle and calves, hogs and pigs, sheep and lambs, horses, sorghum.
7. **Southeast Dairy, Poultry, Truck, and Pine Area:** Milk, strawberries, cattle and calves, hogs and pigs, Irish potatoes, corn, nursery and greenhouse crops, broilers and eggs.
8. **Sugarcane Area:** Sugarcane, corn, soybeans, Irish potatoes, cattle and calves.
9. **Truck and Fruit Area:** Citrus, vegetables, nursery and greenhouse products.

Type of Farming Areas

1. Western Dairy, Poultry, Livestock, and Pine Area
2. Red River Cotton, Cattle, and Soybean Area
3. North Central Dairy, Poultry, and Pine Area
4. Mississippi Delta Cotton, Soybeans, and Beef Area
5. Southwest Rice, Soybean, Beef, and Dairy Area
6. Central Mixed Farming Area
7. Southeast Dairy, Poultry, Truck, and Pine Area
8. Sugar Cane Area
9. Truck and Fruit Area

(Revised 1974)

Figure 4.—Farming areas in Louisiana.

Each of the major crops and livestock enterprises is discussed later in the publication. Trends in acreage, yield, and total production since 1940 are presented to illustrate the changes that have occurred and the current relative importance of the various enterprises.

Table 4.—Number of farms and average size of farms in Louisiana for selected years

Year	Total Number of Farms*	Average Size of Farm
		(acres)
1940	150,007	66.6
1945	129,295	77.6
1950	124,181	90.2
1954	111,127	103.0
1959	74,438	139.0
1964	62,466	166.7
1969	42,269	231.5
1974	33,240	275.0

*Numbers are not completely comparable because of changes in the definition of a farm that occurred in 1959 and again in 1974. ("Number of Farms" reported by the Crop & Livestock Reporting Service, USDA, is greater than census figures).
Source: *Census of Agriculture* for the years designated.

Number and Size of Farms

There has been a continual and rapid decline in the number of farms in Louisiana since 1940 (Table 4). This trend is consistent with the general decrease in the number of farms throughout the United States. There were 150,000 farms in Louisiana in 1940, compared to about 33,000 in 1974.

It should be noted that the dramatic decline in farm numbers over time is *not* an indication that farming is a declining industry. In fact, part of the noted decline is more imaginary than real. Because of the way a farm is defined for census purposes, a plantation with 15 sharecroppers was counted as 15 separate "farms" in early censuses. As the number of sharecroppers declined there was a corresponding decrease in the number of "farms" even though the basic farm unit (the plantation) still existed. In other words, as the plantation passed from 15 sharecropping operations to a single operation utilizing hired labor, the number of farms decreased from 15 to one. Thus, part of the apparent decline in farm numbers in Louisiana has been caused by changes in institutional arrangements at the farm level.[2] Since the plantation owner made the major decisions for sharecroppers, the 15 "farms" of early censuses were "paper" farms; they did not actually exist as separate and independent units. The decline in this form of sharecropping accounts for much of the decline in farm numbers prior to 1959.

Furthermore, part of the decrease in farm numbers between 1940 and 1974 was caused by two changes in the definition of a farm. Prior to 1959, a farm was defined as a unit of 3 or more acres if the annual value of agricultural products, exclusive of home garden products, was $150 or

[2]See: Fred H. Wiegmann, "Some Implications from the 1959 Census of Agriculture," *Louisiana Rural Economist,* May 1961, p. 4.

more. A unit of less than 3 acres was also classified as a farm if the value of agricultural products sold was $150 or more.

In the 1959, 1964, and 1969 census years, a farm was defined as a unit of 10 acres or more if the annual value of agricultural products was $50 or more. A unit of less than 10 acres that produced products valued at $250 or more was also classified as a farm. In 1974, the definition of a farm was again modified. Acccording to the new definition, a farm is any unit, regardless of size, that sells at least $1,000 of agricultural products annually.

Each change in the definition of a farm reduced the number of units that were classified as a farm, thus causing part of the decrease in the number of farms. Some of the units should probably never have been classified as farms in the first place. Their inclusion overstated a base for measurement which now leads to an overstatement of the extent of decline in farm numbers.

The trend toward fewer farms has been accompanied by a trend toward larger farms. In 1974, the average farm size in Louisiana was 275 acres, compared to only 67 acres in 1940. This trend has been caused by two major factors. First, the decline in sharecropping and the consolidation of land holdings by owners have had a positive effect on farm size. Second, smaller farms have been purchased and added to other farms to take advantage of economies of size. As small farms are combined to form larger units, more efficient production methods and equipment can be used, and costs per unit of output generally decline.

Data in Table 5 further illustrate the change in farm numbers and size in

Table 5.—Farm numbers by class, value of selected farm resources, and farm tenure for selected years, Louisiana

	Year			
	1959	1964	1969	1974
Farm sales less than $2,500	39,618	42,776	23,077	15,382
Farm sales more than $2,500	34,715	19,658	19,158	17,818
Number of farms with sales $2,500 to $19,999	—	14,416	12,691	8,892
Number of farms with sales $20,000 up	—	5,242	6,467	8,926
Value of land and buildings per farm	$23,719	$38,636	$74,414	$140,754
Value of machinery and equipment per farm	NA*	NA*	$10,164	$21,470
Farm tenure				
Full owner	44,264	37,439	24,586	20,128
Part owner	11,755	12,617	10,918	8,765
All tenants	17,950	12,151	6,765	4,347

*Data not available

Source: Compiled from the *Census of Agriculture* for the designated years.

Louisiana. The number of non-commercial farms, or farms with annual farm sales of less than $2,500, declined by 61 percent, while commercial farms declined 48.7 percent during the period 1959-1974. Similarly, farms with gross sales less than $20,000 declined by 38 percent from 1964 to 1974, while those with sales of $20,000 and over increased by 70 percent (Table 5). The 1974 census year was the first in which commercial farms outnumbered non-commercial farms in Louisiana.

The average value of land and buildings per farm increased more than 600 percent between 1959 and 1974, from nearly $24,000 per farm in 1959 to nearly $141,000 in 1974. Similarly, the value of machinery and equipment per farm doubled during the 5-year period 1969-1974. The reader should note that part of the increase in value has been caused by inflation.

Farm Tenure

Farm tenure data are also presented in Table 5. Tenure refers to the type of farm ownership — full owner, part owner, and tenant. The data indicate a substantial decline in the number of tenant-operated farms in Louisiana between 1959 and 1974. In 1959, 24 percent of the farms were operated by tenants. By 1974, only 13.1 percent were tenant-operated. However, renting land on a cash or share lease continues to be a popular alternative because it provides a way for farmers to expand their farming operations without incurring the high capital cost associated with purchasing land.

The percent of farms operated by full owners remained almost constant between 1959 and 1974 (59.5 percent versus 60.6 percent, respectively). During the same period, the percent of farms operated by part owners increased from 15.8 to 26.4 percent of the total number of farms.

Cash Receipts

Total cash farm receipts, which represent the gross income Louisiana farmers receive from the sale of crops, livestock and livestock products, and government programs, are shown in Table 6.

Cash receipts from crops increased from $68.8 million in 1940 to $851 million in 1977. Louisiana farmers received a record $961.5 million for the crops marketed in 1974. Receipts from crops doubled between 1971 and 1977.

Cash receipts from livestock marketings increased from $26.1 million in 1940 to $406.0 million in 1977. Livestock receipts reached a high of about $408 million in 1973. Receipts from livestock marketings generally accounted for 25 to 35 percent of total cash farm receipts in Louisiana during the period 1940-1977.

The level of government payments used to stabilize prices and incomes received by farmers was quite variable during the period. Payments were relatively higher from 1966 to 1973, varying from $43 million to $55

Table 6.—Cash farm receipts from crop and livestock marketings and government payments, Louisiana, 1940-1977

Year	Cash Farm Receipts From			Total Cash Farm Receipts
	Crop Marketings	Livestock Marketings	Government Payments	
	$1,000,000			
1940	$ 68.8	$ 26.1	$21.1	$ 113.9
1941	84.5	33.3	15.9	133.6
1942	140.0	43.8	8.8	192.5
1943	186.3	57.6	16.6	260.5
1944	171.4	60.9	16.5	248.8
1945	186.5	72.5	12.4	271.4
1946	177.2	88.6	11.8	277.6
1947	230.7	112.9	9.1	352.6
1948	246.7	114.1	8.6	369.4
1949	240.4	104.0	9.1	353.5
1950	228.4	97.0	11.4	336.8
1951	262.9	121.1	11.6	395.5
1952	322.2	108.6	9.5	440.4
1953	292.3	108.7	6.7	407.7
1954	263.9	113.7	11.3	389.0
1955	258.2	114.7	10.3	383.2
1956	247.1	120.2	13.1	380.4
1957	201.8	140.1	21.6	363.4
1958	186.0	167.4	29.7	383.1
1959	234.2	147.8	13.7	395.7
1960	231.1	142.0	15.1	388.2
1961	258.1	154.0	16.5	428.6
1962	264.3	163.9	19.6	447.8
1963	337.7	158.4	16.8	512.9
1964	320.4	163.6	22.1	506.1
1965	295.7	189.4	22.1	507.3
1966	306.5	220.7	51.8	579.0
1967	369.7	215.9	55.5	641.0
1968	408.0	229.0	50.7	687.7
1969	355.4	254.0	52.3	661.7
1970	378.2	274.0	55.1	707.3
1971	429.1	265.8	50.0	744.7
1972	472.1	323.0	51.0	846.1
1973	723.3	407.7	43.3	1,174.3
1974	961.5	334.8	13.6	1,309.9
1975	794.6	315.0	18.7	1,128.3
1976	868.4	405.5	7.5	1,281.4
1977*	851.0	406.0	44.4	1,301.4

Source: Compiled from: L. L. Fielder, C. O. Parker, and J. B. Penn, *Agricultural Statistics for Louisiana, 1909-1968*, Department of Agricultural Economics and Agribusiness, Louisiana Agricultural Experiment Station, in cooperation with the Statistical Reporting Service, U.S. Department of Agriculture, D.A.E. Research Report No. 397, June 1969; L. L. Fielder and S. L. Guy, *Agricultural Statistics for Louisiana, 1964-1972*, D.A.E. Research Report No. 458, October, 1973; No. 496, November, 1975; and No. 523, August, 1977.

*Preliminary

million paid to Louisiana farmers. Payments decreased considerably after 1973, declining from $13.6 million in 1974 to $7.5 million in 1976. The lower payments reflect suspension of government programs designed to compensate farmers for decreasing production of certain commodities. These programs were practically eliminated in 1973 as farmers were encouraged to expand production to alleviate shortages of certain commodities to meet world food needs. Further changes in policy, production and markets resulted in payments estimated at $44.4 million in 1977, of which $30.9 million was for rice.

Cotton and sugarcane programs accounted for most of the government payments received by Louisiana farmers. For example, set aside and price support programs for cotton resulted in the payment of $31.2 million to Louisiana farmers in 1973. Payments to sugarcane farmers under the Sugar Act totaled $9.6 million the same year. Hence, cotton and sugarcane programs accounted for 94 percent of the $43.3 million in government payments received by Louisiana farmers in 1973, and wheat and feed grain programs accounted for most of the remaining government payments to farmers. In 1975, Sugar Act payments totaled $8.6 million (for the 1974 crop) and payments under the cotton program declined to $6.4 million. The Sugar Act expired December 31, 1974.

Total cash farm receipts increased dramatically between 1940 and 1977, reflecting increases in the value of livestock and crop marketings during the period. Total receipts averaged $190 million for the 5-year period 1940-1944 and increased to an average of over $1 billion per year for the period 1972-1977. Farmers received a record high of $1.3 billion for their products in 1977. Total cash farm receipts more than doubled between 1965 and 1977.

The increase in cash receipts during the period was not due entirely to expanded agricultural production in Louisiana. Since cash receipts are reported in dollar values, yearly price variations and inflationary trends during the period affect the level of cash receipts. Part of the increase in cash receipts reflects inflation as well as increases in agricultural production, particularly since 1972.

Data in Table 7 provide a detailed breakdown of cash receipts according to major commodities produced in the state. Commodities are also ranked according to their contribution to total receipts for selected years to illustrate changes that have occurred over time. For example, in 1960, cotton was the number one crop in Louisiana in terms of cash receipts. By 1977, however, soybeans had become the number one crop and cotton had slipped to third position. Receipts from cattle and calves ranked second in 1960 and 1977 relative to other commodities, while sugarcane changed from fifth in 1960 to sixth in 1977. Individually, fruits, nuts, and vegetables account for a relatively small part of total cash farm receipts. When

Table 7.—Ranking of major commodities, by cash farm receipts, Louisiana, selected years[1]

Commodity	Year							
	1960		1965		1970		1977*	
	Cash Receipts	Rank	Cash Receipts	Rank	Cash Receipts	Rank	Cash Receipts	Rank
	($1,000)		($1,000)		($1,000)		($1,000)	
Soybeans	8,968	9	31,929	6	96,255	3	319,047	1
Sugarcane	38,808	5	48,563	5	62,179	6	101,599	6
Rice	58,109	3	82,551	3	101,666	2	170,888	4
Cotton lint & seed	83,390	1	91,139	2	68,080	5	179,519	3
All fruits, nuts, & vegetables	14,637	7	12,255	9	16,495	9	32,974	9
Other crops[2]	27,226	—	29,299	—	27,546	—	46,997	—
TOTAL CROPS	231,138	—	295,736	—	372,221	—	851,024	—
Dairy products	39,362	4	52,976	4	73,475	4	114,527	5
Cattle & calves	67,384	2	91,581	1	145,451	1	185,787	2
All chickens	11,578	8	15,891	8	24,640	7	59,356	7
Eggs	15,407	6	21,768	7	23,234	8	31,274	8
Other livestock	8,242	—	7,278	—	10,348	—	15,050	—
TOTAL LIVESTOCK	141,973	—	189,494	—	278,148	—	405,994	—
TOTAL ALL COMMODITIES	373,111		485,230		650,469		1,257,018	

*Preliminary.

[1]Not including government payments.

[2]Includes income from nursery, greenhouse, and farm woodlots. Commercial forestry is discussed later in the bulletin.

Source: Compiled from various issues of *Louisiana Farm Income*, Louisiana Crop and Livestock Reporting Service, USDA, and Department of Agricultural Economics and Agribusiness, Louisiana State University

viewed collectively, however, they are among the nine most important enterprises in Louisiana. The data show that soybeans, cotton, sugarcane, rice, dairy products, cattle and calves, and poultry products are the major farm income-producing enterprises in the state, excluding income from commercial forestry production.[3]

Production Expenses

Farmers contribute to the growth of the economy through their purchases of goods and services needed for production. Their purchases create income and generate employment in the agribusiness and farm services sector — $993 million in 1977. Farm production expenses for the period 1949 to 1977 are shown in Table 8. Both operating and fixed expenses are reported. Operating expenses, which consist of the "variable" costs (seed, fertilizer, labor, pesticides) incurred for production for a given year, increased from about $146 million in 1949 to more than $666 million in

[3]Income from forestry is discussed later in the bulletin. Income from crawfish and catfish farming is also not included in these data.

Table 8.—Farm production expenses for Louisiana, 1949-1977

Year	Operating Expenses[1]	Fixed Expenses[2]	Total Production Expenses[3]
	----------$1,000,000----------		
1949	146.4	44.1	190.5
1950	161.4	50.5	211.9
1951	179.2	57.0	236.2
1952	195.3	60.3	255.6
1953	188.7	61.5	250.2
1954	185.2	62.0	247.2
1955	186.9	64.2	251.1
1956	193.2	64.3	257.5
1957	191.3	66.8	258.1
1958	197.9	69.2	267.1
1959	209.6	74.4	284.0
1960	203.1	72.2	275.3
1961	209.2	73.7	282.9
1962	218.8	76.5	295.3
1963	240.3	88.2	328.5
1964	243.6	92.9	336.5
1965	253.9	100.4	354.3
1966	271.0	114.4	385.4
1967	292.0	129.0	421.0
1968	309.0	137.9	446.9
1969	312.1	142.4	454.5
1970	327.8	146.3	474.1
1971	399.9	141.2	541.1
1972	435.2	212.1	647.3
1973	508.4	250.6	759.0
1974	627.4	326.5	953.9
1975	618.8	290.3	909.1
1976	655.9	322.5	978.4
1977	666.8	327.8	993.4

[1]Operating expenses include the costs of feed, seed, livestock, fertilizer, hired labor, fuel, oil, and repair of buildings, vehicles, and machinery, and miscellaneous items such as insurance, irrigation expenses, costs of electricity, pesticides, veterinary services, and other expenses.

[2]Fixed expenses include depreciation on farm buildings and machinery, property taxes, interest on farm mortgages, and rent paid to non-farm landlords.

[3]Not including family and operator labor, opportunity costs (for owned capital) and management.

Source: Compiled from Fielder, Parker, and Penn, 1969, *op.cit.*, Table 6; Fielder and Guy, 1973 and 1976, *op. cit.*, Table 5; and *State Farm Income Statistics* (supplement to Statistical Bulletin No. 609), ESCS, USDA, September, 1978.

1977, more than doubling between 1968 and 1977.

Fixed expenses are costs that must be met whether or not anything is produced in a given year. For example, the note on a tractor (principle and interest) must be paid even if it is never moved from the shed; payment must be made on the hay barn even if no hay is stored in it. Fixed costs include depreciation on farm buildings, equipment, and machinery, and property taxes, interest on mortgages, and rent. Fixed expenses increased from $44.1 million in 1949 to $326.5 million in 1974 and $327.8 million in

1977. Higher land rent accounted for a major part of the increase in fixed expenses in recent years. For example, land rent increased from $17.4 million in 1971 to $100 million in 1974.

Total production "expenses" is normally the sum of operating and fixed expenses in a given year. It does not always include all economic costs, however. For example, in Table 8 the value of family and operator labor, "opportunity costs" of owned capital, and management costs are excluded.[4]

Total production expenses have increased dramatically since about 1970, to a record level of $993.4 million in 1977. This represents an increase of over 200 percent. The largest increase occurred between 1973 and 1974, largely due to higher petroleum, fertilizer, and land rental expenses. Part of the increase in production expenses is explained by higher levels of input use. A significant part of the increase in production expenses was caused by inflated prices of inputs, especially prices for gasoline, petroleum, and fertilizer in recent years.

Farm Productivity

Data thus far provides various measures of growth in Louisiana agriculture. Farms have become larger, and the value of output and input costs have increased. At the same time, farm productivity has also increased. Productivity refers to the level of output produced from a unit of input such as an acre of land or hour of labor. Data in Table 9 indicate that farm output per man-hour increased 42 percent in the Delta States (Louisiana, Arkansas, and Mississippi) between 1967 and 1975. The increase is due to new technology, higher yielding varieties, and increased use of machinery that decreases the number of man-hours required to perform various farm operations. This represents a significant increase in labor productivity and reflects more efficient production processes that have been adopted in farming. It is generally conceded that labor productivity in farming has increased more rapidly than in most of the industrial sectors of the economy. The result has been relatively low cost food and fiber for domestic consumption and export and the release of farm labor for non-farm production in other sectors of the economy.

Louisiana Crops of National Importance

Louisiana ranks among the top 10 of the 50 states in the production of sugarcane, rice, and cotton. In 1975, Louisiana harvested more acres of

[4] "Opportunity costs" refer to income "lost" (not received) because money invested in one kind of enterprise, for example, might have earned more return in another enterprise. If an investment earns $10 when it might have earned $40 in another use, the "opportunity cost" is $30.

Table 9.—Index of farm output per man-hour of labor, Delta States Region, 1965-1975 (1967 = 100)*

Year	Index of farm output per man-hour
1965	90
1966	93
1967	100
1968	114
1969	112
1970	124
1971	130
1972	135
1973	137
1974	133
1975	142

*The Delta States Region includes Arkansas, Mississippi, and Louisiana.

Source: U.S. Department of Agriculture, *Agriculture Statistics*, 1976, U.S. Government Printing Office, Washington, D.C. 1976.

sugarcane for sugar (329,000 acres) than any other state. In comparison, Florida and Hawaii harvested 297,000 and 112,000 acres, respectively. Higher yields in the other cane producing states caused Louisiana to rank third in total cane production. In 1975, Louisiana produced 6.9 million tons of cane for sugar compared with 9.9 million tons for Florida and 10.4 million tons for Hawaii. Hawaii had an average yield of 92.9 tons of cane per acre, compared with 33.2 and 21.0 tons per acre for Florida and Louisiana, respectively.

In 1976, Louisiana ranked second among all states in harvested acreage of rice (568,000 acres), surpassed only by Arkansas with 847,000 acres, and followed by Texas with 508,000 acres. In total rice production, Louisiana was third behind Arkansas and Texas. In 1975, rice yields in California were almost 1,900 pounds per acre higher than in Louisiana, thus moving California ahead of Louisiana in total rice production.

In 1975, Louisiana ranked seventh among all states in cotton acreage harvested and fifth in total production of cotton. These rankings are somewhat lower than normal because, as noted earlier, acres of cotton harvested in the state in 1975 was the lowest in many years. Louisiana usually ranked about fourth or fifth among the cotton producing states.

Louisiana's Share of Crop and Livestock Marketings

Within the period 1940 to 1976, Louisiana's dollar share of agricultural marketings in the United States increased for some commodities, particularly cotton, soybeans, wheat, cattle and calves, chickens, broilers, and eggs and decreased for sugarcane, rice, oats, hay, hogs and pigs, and

Table 10.—Louisiana's dollar share of United States' marketings, by commodities, selected years, 1940, 1958, and 1976 (excludes government payments)

Commodity	1940	1958	1976
	---------(Percent of U.S.)----------		
Sugarcane*	75.0	77.2	35.4
Rice	35.0	25.1	19.0
Cotton	3.6	2.5	5.2
Soybeans	0.5	0.5	4.1
Sweet Potatoes	7.1	16.2	10.5
Corn	1.0	4.6	0.1
Wheat	—	0.05	0.1
Sorghum	—	1.1	0.3
Oats	0.2	0.1	0.1
Hay	0.6	0.6	0.3
Cattle & Calves	0.6	1.4	1.1
Hogs & Pigs	1.0	0.5	0.4
Chickens	0.7	0.8	1.4
Broilers	—	1.1	1.8
Eggs	0.5	0.6	1.1
Dairy Products	0.9	0.8	1.0
Strawberries	10.9	7.6	1.6

*Excludes Hawaii.

Source: Agricultural Statistics (Vol. 1941, 1959, and 1977) United States Government Printing Office, Washington, D.C.

strawberries (Table 10). Others, including sweet potatoes, corn, and sorghum, reflected higher values at the midpoint of the period and then declined. Dairy products remained fairly constant over this time period.

The growing importance of Louisiana as a soybean producer is well documented in crop statistics which show that Louisiana farmers sold about $300,000 worth of soybeans in 1940 compared to over $376 million in 1976. The poultry industry is increasing in importance, as chickens, broilers, and eggs produced in Louisiana account for an increasing share of total U.S. production. The most conspicuous changes in Louisiana's share of U.S. production are the increases in soybeans and poultry products, as contrasted with the declines in shares of production of sugarcane, rice, and strawberries.

Louisiana Agricultural Exports

Because of its strategic location at the foot of the Mississippi River, Louisiana serves as a funnel for the export of about 40 million tons, or $7 billion, in agricultural exports annually. In 1974, this represented about 30 percent of total U.S. agricultural exports.

Traditionally, Louisiana thrives on foreign trade. About $2 out of every $5 received by farmers from sale of farm products results from exports.

Agricultural products originating in Louisiana accounted for about 8

percent of the agricultural exports through Louisiana ports. Of the several agricultural commodities exported, the portions contributed by Louisiana producers and processors were: 91 percent of the rice, 9 percent of the soybeans, about 52 percent of grain products (cereal by-products, oilseed cake, meal, and similar products), and 13 percent of the fats and oils.

In 1974, the farm value of agricultural exports originating in Louisiana (other than lumber) was estimated at $554.4 million or 40.6 percent of the total $1.4 billion in Louisiana farm marketings (excludes forest products, and nursery and greenhouse sales). It is estimated that the export of Louisiana farm products generated employment for about 42,000 workers and related labor incomes of $348 million.[5]

Rice and soybeans are the major crops Louisiana exports—about 80 and 90 percent of the state's production, respectively. Of the Louisiana rice and soybeans exported in 1974, about half of the rice and one-fourth of the soybeans were exported through Texas ports because of existing transportation and processing arrangements.

Louisiana is a net importer of beef, pork, and most meat products. Exports consist mainly of poultry and livestock by-products such as hides, tallow, and lard.

Complete data on the export of forestry products from Louisiana are difficult to find because of the absence of central forwarding terminals for trucking and rail lines. Nevertheless, a significant measure of the volume of wood and wood product exports is obtained from reports of waterborne commerce passing through the ports of New Orleans, Lake Charles, and Baton Rouge.[6] During the period 1954 to 1976, exports of logs and lumber ranged from a low of 35,000 tons in 1961 to a high of 200,000 tons in 1976, or an average of about 94,000 tons annually.

Exports of plywood and manufactured products declined from a high of 56,000 tons exported in 1954 to a low of 12,000 tons in 1972, then gradually increased to 39,000 tons in 1976. Exports of pulp and paper, however, have increased from about 79,000 tons in 1954 to 935,000 tons in 1976. Although the origin of these wood product shipments is not stated, it is assumed that a large share of the exports originated in Louisiana.

---

[5] *Foreign Agricultural Trade and Its Importance to Louisiana,* by Floyd L. Corty and Julio C. Varela, D.A.E. #508, Department of Agricultural Economics and Agribusiness, Louisiana State University, Center for Agricultural Sciences and Rural Development, October 1976.

---

[6] *Waterborne Commerce of the United States,* Part 2, Waterways and Harbors, Gulf Coast, Mississippi River System and Antilles, Department of the Army Corps of Engineers, New Orleans, Louisiana, Annual Reports.

IV. MAJOR LOUISIANA CROPS: TRENDS IN ACREAGE, YIELD, PRODUCTION, AND LOCATION OF PRODUCTION

Field Crops

Cotton

Historically, cotton has been one of the major crops in Louisiana. However, the number of harvested acres of cotton has declined considerably since 1940 (Figure 5). From 1940 to 1944, an average of 995,000 acres was harvested. In contrast, an average of only 393,000 acres was harvested from 1966 to 1970. Harvested acreage increased to an average of 538,000 acres between 1972 and 1976. Acreage harvested in 1975 (310,000) was the lowest recorded during the period. In 1977, 540,000 acres were harvested.

There was a significant increase in the yield of cotton lint per acre during the period from 1940 to 1976 (Figure 6). An average of only 268 pounds of lint per acre was produced from 1940 to 1944, compared with almost 484 pounds per acre from 1972 to 1976 and more than 600 pounds per acre in 1963, 1966, 1967, and 1968. Estimated yield for 1978 was 583 pounds. Weather conditions account for a large part of the year-to-year variation in cotton yields.

Total production of cotton lint in Louisiana varied greatly during the period (Figure 7). The lowest level of production occurred in 1949 when only 247,000 bales were harvested. On the other hand, a record high of 806,000 bales was harvested in 1953. While year-to-year variations in total production have been large, average production for the period from 1940 to 1944 at 544,000 bales was about the same as for the period from 1972 to 1976 at 537,000 bales. Production in 1977 was 656,000 bales. Increases in yields have generally been sufficient to offset the decline in acreage of cotton harvested during the last 35 years.

Significant shifts have also occurred in the location of cotton production in Louisiana. From 1940 to 1944, cotton was produced in all areas of the state, with the exception of Farming Area 9. The major cotton producing regions were Areas 2, 4, and 6, which accounted for about 75 percent of total production. Production has become more concentrated in recent years. From 1972 to 1976, Farming Areas 2 and 4 accounted for 16 and 77 percent, respectively, of Louisiana's cotton production. Farming Area 6 produced 4.5 percent of the cotton and other farming areas combined to contribute less than 7 percent of total cotton production between 1972 and 1976. Figure 8 and subsequent maps have shaded areas showing regions of specialized production. The legend indicates the percentage of total production of a particular commodity within a designated farming region.

Figure 5. Cotton Acreage Harvested, Louisiana, 1940-1976.

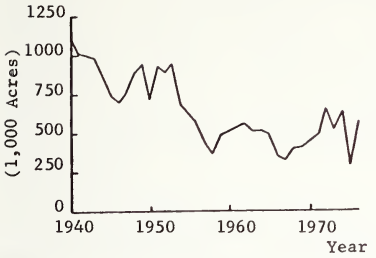


Figure 6. Cotton Yield per Acre, Louisiana, 1940-1976.

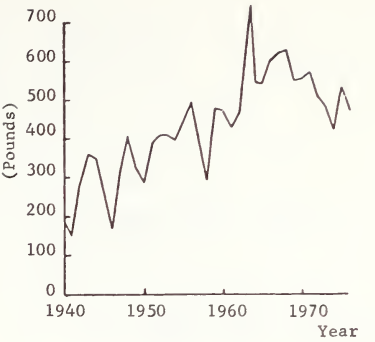


Figure 7. Total Production of Cotton, Louisiana, 1940-1976.

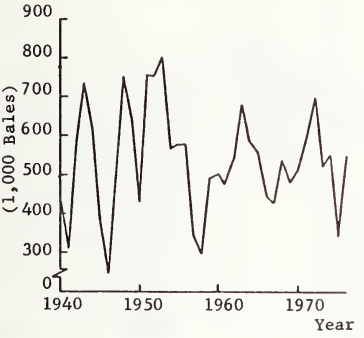
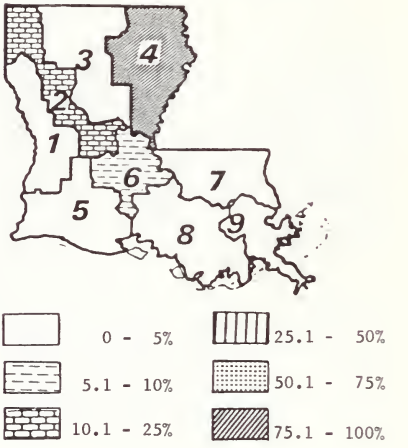


Figure 8. Concentration of Cotton Production, by Farming Area, Louisiana, 1972-1976.



Rice

Harvested acreage of rice has fluctuated between 400,000 acres and 680,000 acres since 1940 (Figure 9). During the periods 1940 to 1944 and 1972 to 1976, harvested acreage averaged 558,400 and 606,000 acres, respectively. The estimate for 1978 was 583,000 acres. Government restrictions were largely responsible for the decline in harvested acres of rice during the mid fifties. On the other hand, changes in government programs that relaxed these restrictions resulted in a significant increase in rice acreage from 1973 to 1975.

Rice yields ranged around 17 hundredweight per acre between 1940 and

Figure 9. Rice Acreage Harvested, Louisiana, 1940-1976.

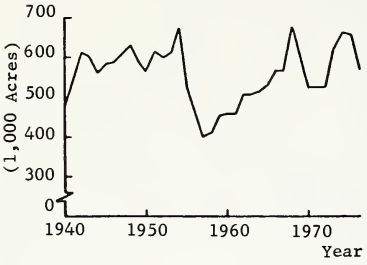


Figure 10. Rice Yield per Acre, Louisiana, 1940-1976.

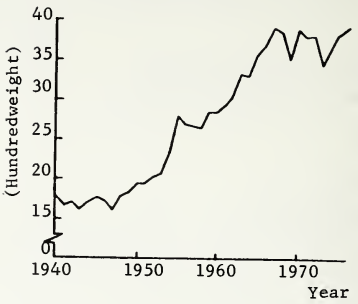
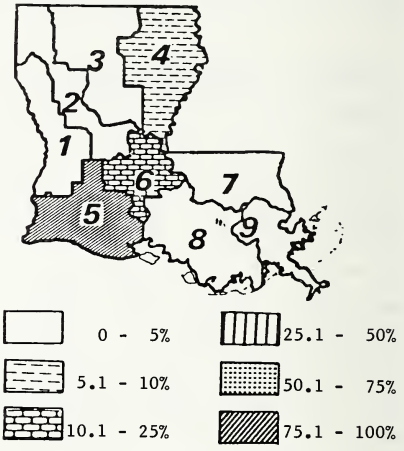


Figure 11. Total Production of Rice, Louisiana, 1940-1976.

Figure 12. Concentration of Rice Production, by Farming Area, Louisiana, 1972-1976.



1947 (Figure 10). Yields per acre increased dramatically between 1948 and 1967, reaching a yield of 39 hundredweight in 1967. Rice yields generally leveled off and averaged about 37 hundredweight per acre from 1972 to 1976. The 1977 yield was 36.7 hundredweight; the estimate for 1978 was 37.0 hundredweight.

The trend in total rice production has been upward, increasing from 8.4 million hundredweight in 1940 to 25.1 million hundredweight in 1975 (Figure 11). Total production reached a record level in 1968 at 26.1 million hundredweight. Production averaged about 22.5 million hundredweight during the 5-year period from 1972 to 1976. Most of the increase in rice production is attributable to increases in yield per acre during the period. Production was 17.4 million hundredweight in 1977 and 21.6 million hundredweight was estimated for 1978.

Rice production has traditionally been concentrated in Farming Area 5, the southwestern part of the state (Figure 12). This is largely due to the impervious subsoils of southwest Louisiana that are used to hold irrigation water to discourage weeds during the growing period. Farming Area 5 accounted for an average of almost 83 percent of the rice produced in the state from 1940 to 1944. Parishes in Farming Area 6, which border on the rice area, contributed about 10 percent of total production.

Farming Areas 5 and 6 still account for the major portion of total rice production, 76 and 15 percent, respectively, from 1972 to 1976. However, production has been expanding in Farming Area 4 in northeast Louisiana in recent years. The area accounted for almost 10 percent of total production in 1975. Parts of the area are well-suited for rice production, and recent changes in government programs have encouraged farmers to expand production.

Sugarcane

Sugarcane, like cotton, has a long economic history in Louisiana. Harvested acreage has fluctuated substantially over the years, averaging 266,200 acres between 1940 and 1944 and increasing to 330,000 acres from 1972 to 1976 (Figure 13). This represents a 24 percent increase in acreage. From 1940 to 1976, sugarcane acreage varied between a low of 222,000 acres in 1956 and a high of 345,000 acres in 1964. It was 322,000 acres in 1977 and was estimated at 300,000 acres for 1978.

Sugarcane yields have increased slightly over time (Figure 14). Yields averaged 18.0 tons and 22.8 tons per acre from 1940 to 1944 and 1972 to 1976, respectively. The highest yield during the period was 29.0 tons per acre in 1963; the lowest yield occurred in 1940 when only 13.9 tons per acre were produced. The 1977 yield was 23.9 tons per acre, and 22 tons were estimated for 1978.

Total production of sugarcane increased about 56 percent between the periods 1940 to 1944 and 1972 to 1976 (Figure 15). The increase was due both to more acreage and higher yields. Production from 1940 to 1944 averaged 4.8 million tons, compared with 7.5 million tons from 1972 to 1976. Total production in Louisiana peaked in 1963 at almost 9.2 million tons of sugarcane. Production during the period from 1940 to 1976 was lowest in 1940 when only 3.35 million tons were produced. The 1977 production was 7.7 million tons, and 6.6 million tons was estimated for 1978.

Ninety percent of the sugarcane production in Louisiana between 1972 and 1976 was concentrated in Farming Area 8, the Sugarcane Area (Figure 16). This percentage has remained relatively constant over time. The only other area that produced a significant amount of sugarcane is the Central

Figure 13. Sugar Cane Acreage Harvested, Louisiana, 1940-1976.

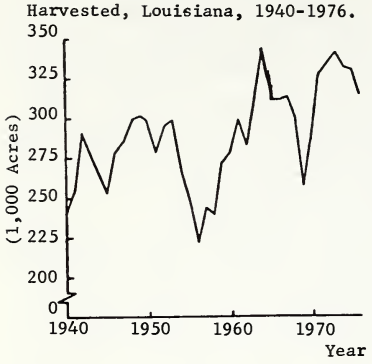


Figure 14. Sugar Cane Yield per Acre, Louisiana, 1940-1976.

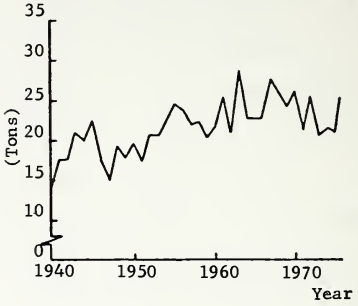


Figure 15. Total Production of Sugar Cane, Louisiana, 1940-1976.

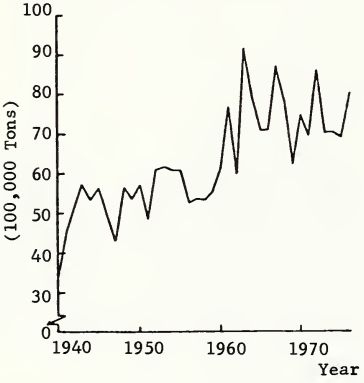
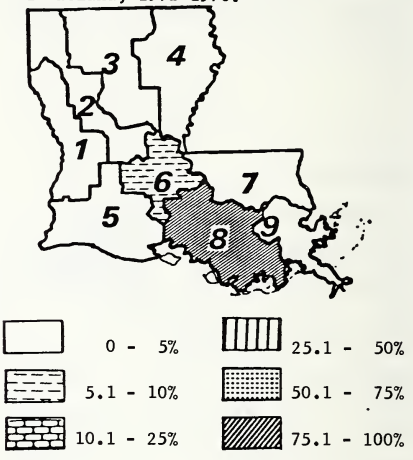


Figure 16. Concentration of Sugar Cane Production, by Farming Area, Louisiana, 1972-1976.



Louisiana Mixed Farming Area (Area 6) which has consistently accounted for about 7 percent of total production. Parishes in other farming areas that border on Farming Area 8 also produce small amounts of sugarcane.

Soybeans

The soybean, grown in nearly every farming area, is Louisiana's miracle crop. Harvested acreage of soybeans was very small prior to 1950, averaging only 31,800 acres from 1940 to 1944 and reaching 50,000 acres in 1952 (Figure 17). Moderate increases in acreage occurred between 1950 and 1962, followed by a dramatic increase beginning in 1962. Harvested acreage of soybeans increased from 200,000 acres to almost 1.7 million acres by 1970. Average acreage between 1972 and 1976 was 1.8 million acres, with 2.3 million acres harvested in 1976. Soybeans now rank as the number one crop in Louisiana, with a planted acreage of 2.9 million acres estimated for 1978.

Figure 17. Soybean Acreage Harvested, Louisiana, 1940-1976.

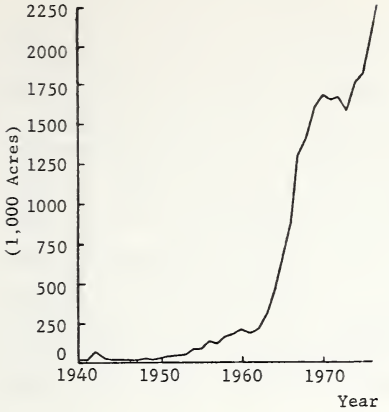


Figure 18. Soybean Yield per Acre, Louisiana, 1940-1976.

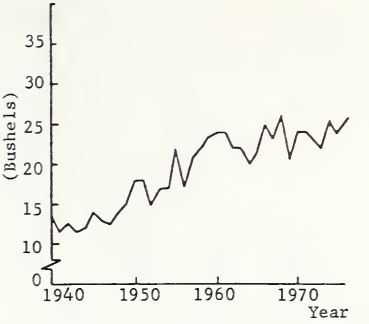


Figure 19. Total Production of Soybeans, Louisiana, 1940-1976.

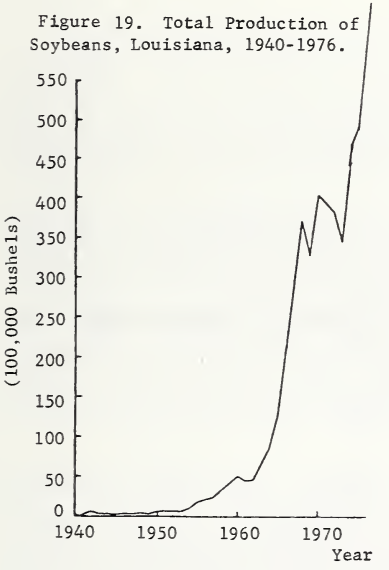
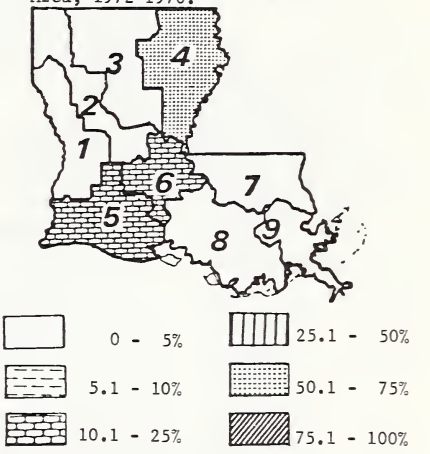


Figure 20. Concentration of Soybean Production, by Farming Area, 1972-1976.



Soybean yields have almost doubled since 1941 (Figure 18). Yields averaged 12.2 bushels per acre from 1940 to 1944 and 25.1 bushels per acre from 1972 to 1976. The highest yield for Louisiana occurred in 1968 and 1976 when 28 bushels per acre were harvested. Estimated yield for 1978 is 24 bushels per acre.

The increase in yields and acreage of soybeans had a dramatic effect on total production, which averaged only 388,000 bushels from 1940 to 1944 compared to 46.5 million bushels for the period from 1972 to 1976, with a high of 63.0 million bushels produced in 1976 (Figure 19). Total production increased over 900 percent between 1962 and 1970, a period of major

expansion in soybean acreage in Louisiana. Estimated production for 1978 is 70.8 million bushels.

The major soybean producing regions between 1972 and 1976 were Farming Areas 4, 5, and 6 (Figure 20). Farming Area 4 was the leading production area, accounting for about 54 percent of total production during the recent 5-year period. This was a decrease in the relative share of soybean production as compared to over 80 percent of the total production between 1955 and 1959. Farming Areas 5 and 6 accounted for 18.9 and 17.6 percent, respectively, of the total production between 1972 and 1976. Both areas have increased their relative share of total production since 1955. An average of 21.4 percent and 19.1 percent of Louisiana's soybeans were produced in Areas 5 and 6, respectively, in 1977. Other farming areas accounted for less than 5 percent of the soybeans grown in the state between 1972 and 1976. Soybean acreage has been increasing in other parts of the state, particularly in Areas 2 and 8.

Corn for Grain

Most of the corn grown in Louisiana is harvested for grain. However, some corn is used for silage. Since the importance of the latter is small compared to the former, only the corn harvested for grain will be considered here.

Harvested acreage of corn for grain has declined steadily since 1940 (Figure 21). An average of 1.3 million acres was harvested from 1940 to 1944 compared with an average of 74,000 acres between 1972 and 1976. The decline in corn acreage has been gradual with no large changes in any given year. However, corn acreage in the 1970's was only about 6 percent of the acreage harvested in the early 1940's when corn was used to feed the large horse and mule population. The acreage in 1977 was 77,000 with an estimate of 50,000 acres for 1978.

Yields per acre of corn in Louisiana increased more than 300 percent between 1940 and 1976 (Figure 22). Yields averaged 15.2 bushels per acre from 1940 to 1944, compared with 51.8 bushels per acre from 1972 to 1976. Prior to 1955, year-to-year increases in yields were relatively small. Moderate although somewhat variable increases in corn yields were recorded between 1956 and 1968. Yields also increased significantly in 1976; they were estimated at 52 bushels per acre in 1977 and 58 bushels in 1978.

Increases in yields have not been large enough to offset the decrease in harvested acreage of corn. This has resulted in a decrease in the total quantity of corn produced in Louisiana (Figure 23). Total production averaged almost 20 million bushels between 1940 and 1944. An average of only 3.2 million bushels was produced from 1972 to 1976, and 3.4 million bushels were produced in 1977.

Corn is grown in practically every parish in Louisiana. Farming Area 6 accounted for the largest percentage (36 percent) of production from 1972

Figure 21. Corn for Grain Acreage Harvested, Louisiana, 1940-1976.

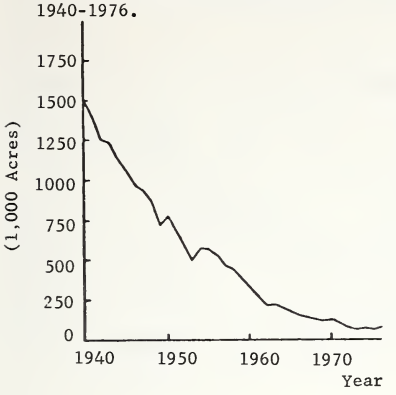


Figure 22. Corn for Grain Yield per Acre, Louisiana, 1940-1976.

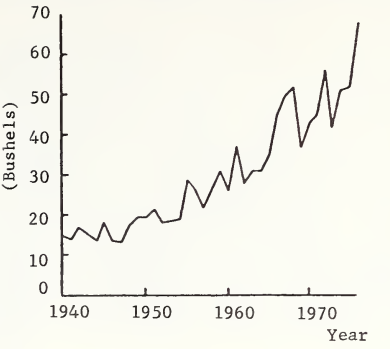


Figure 23. Total Production of Corn for Grain, Louisiana, 1940-1976.

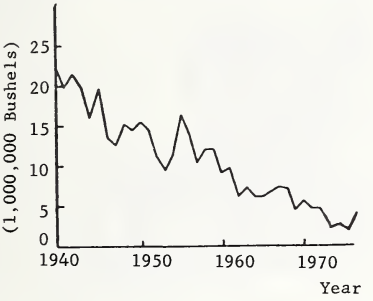
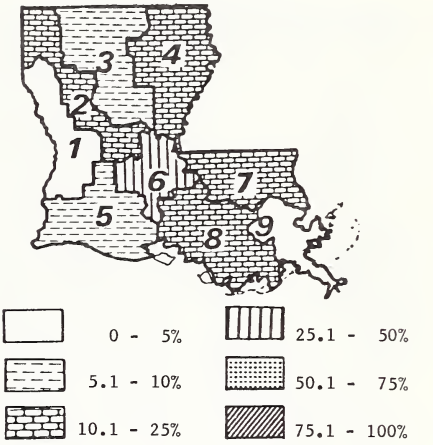


Figure 24. Concentration of Corn for Grain Production, by Farming Area, Louisiana, 1972-1976.



to 1976 (Figure 24). That area has increased its share of production over time. Farming Area 4 produced about 15 percent between 1972 and 1977; however, its relative share of total production has declined by about 50 percent since 1940-1944, while most of the other farming areas have maintained their relative share of corn production.

All Hay

Harvested hay acreage in Louisiana has exhibited several trends since 1940 (Figure 25). Acreage generally decreased between 1940 and 1948; however, the decline was followed by a major increase from 294,000 acres in 1948 to 435,000 in 1953. There was another general downward trend in acreage between 1953 and 1963. Acreage peaked in 1964 at 457,000 acres harvested. Hay acreage was reasonably stable from 1967 through 1976,

Figure 25. Hay Acreage Harvested, Louisiana, 1940-1976.

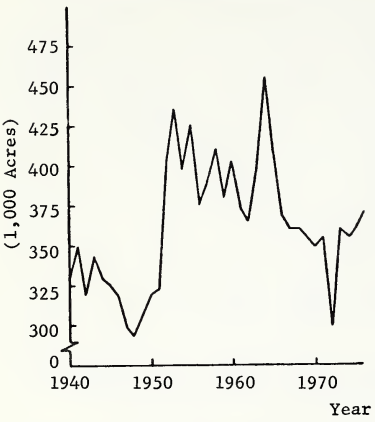


Figure 26. Hay Yield per Acre, Louisiana, 1940-1976.

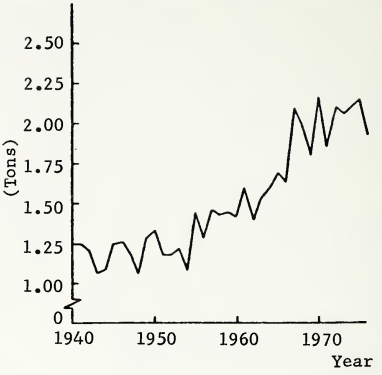


Figure 27. Total Production of Hay, Louisiana, 1940-1976.

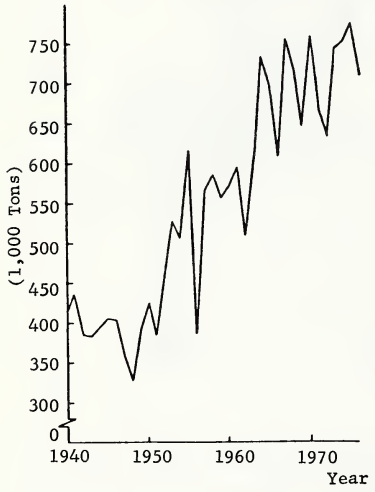
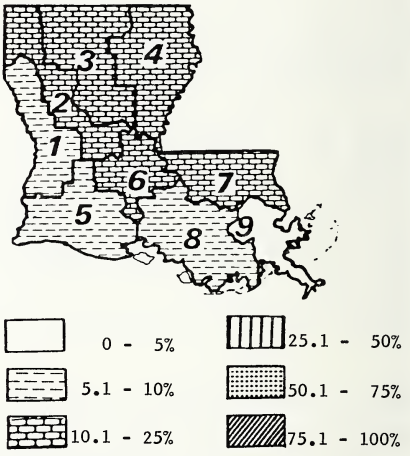


Figure 28. Concentration of Hay Acreage, by Farming Area, Louisiana, 1974.



with the exception of 1972, and averaged 352,000 acres between 1972 and 1976. It was 375,000 acres in 1977 and estimated at 360,000 acres in 1978.

Yields per acre for hay increased from an average of 1.2 tons between 1940 and 1944 to 2.0 tons for 1972-1976 (Figure 26). Yields increased more rapidly after 1961. The highest yield recorded was 2.17 tons per acre in 1970; the lowest yield during the period, 1.12 tons per acre, occurred in 1948. The 1977 yield was 1.91 tons, and a similar yield was estimated for 1978.

There was a significant upward trend in hay production after 1948

(Figure 27). Total production averaged 402,600 tons from 1940 to 1944, compared with 703,000 from 1972 to 1976. Hay production also shows very large year-to-year variations, due mainly to variations in harvested acreage. Production during the period peaked in 1975 when 738,000 tons were harvested. The lowest recorded production during the period was 329,000 tons in 1948. The 1977 production was 715,000 tons.

Hay is grown in all nine farming areas in Louisiana (Figure 28). Areas 2 and 7 were leading areas in 1974, accounting for 18.8 percent and 23.2 percent, respectively, of the state's total acreage. Farming Areas 3, 4, and 6 each accounted for more than 10 percent of the total acreage. Farming Areas 1, 3, and 4 have increased their relative share of total hay production in recent years.

Wheat

Wheat is a minor crop in Louisiana. Statistics pertaining to wheat production in Louisiana were not collected prior to 1955. From 1955 to 1959, harvested acreage averaged 42,600 acres (Figure 29). In 1967, wheat harvested acreage reached a peak of 100,000 acres. Acreage was between 25,000 and 50,000 acres during most subsequent years and averaged 21,000 acres between 1972 and 1976. The 1977 acreage was 27,000 acres, and 20,000 acres was estimated for 1978.

Wheat yields increased about 25 percent between 1955 and 1976 (Figure 30). The average yield between 1955 and 1959 was 18.2 bushels compared with an average of 22.8 bushels between 1972 and 1976. In 1976, wheat yield reached 33 bushels per acre in Louisiana for the first time. Yields were 34 bushels in 1977 and estimated at 32 bushels for 1978.

Total production peaked at 2.6 million bushels in 1967 (Figure 31). Average production between 1972 and 1976 was about 33 percent less than between 1955 and 1959 (491,000 bushels versus 733,000 bushels, respectively). Yield increases have not been large enough to offset the decrease in harvested acreage.

Sixty percent of Louisiana's wheat was produced in Farming Area 4 from 1972 to 1976 (Figure 32). The Red River Area (Farming Area 2) produced an average of about 17 percent while Farming Area 8 accounted for about 9 percent of Louisiana's production. The other farming areas accounted for less than 5 percent each of the production during this period.

Grain Sorghum

Grain sorghum is also a relatively minor crop in Louisiana. Like wheat, sorghum is produced primarily for livestock rather than as a cash crop. Harvested acreage of grain sorghum in Louisiana was very small prior to 1966 (Figure 33). From 1940 to 1944 harvested acreage was never more than 4,000 acres. Between 1955 and 1956, harvested acreage was above

Figure 29. Wheat Acreage Harvested, Louisiana, 1950-1976.

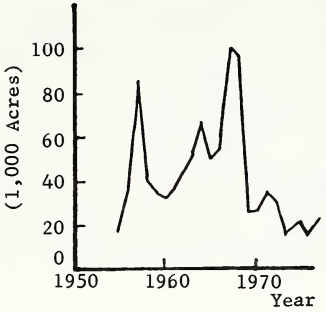


Figure 30. Wheat Yield per Acre, Louisiana, 1950-1976.

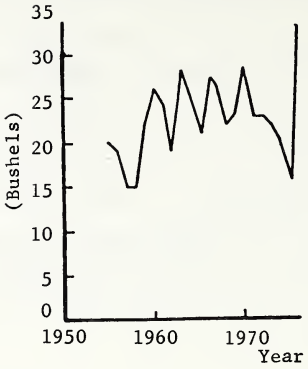


Figure 31. Total Production of Wheat, Louisiana, 1950-1976.

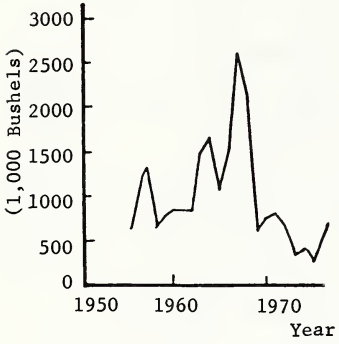
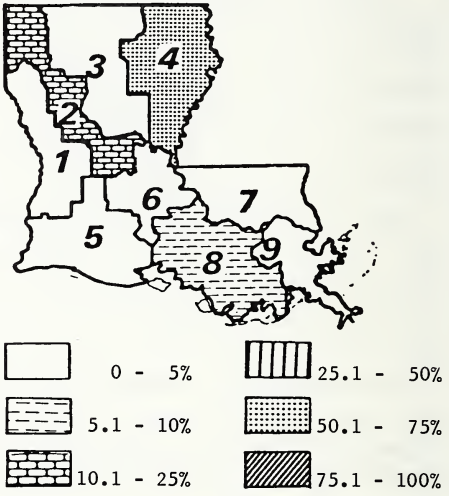


Figure 32. Concentration of Wheat Production, by Farming Area, Louisiana, 1972-1976.



10,000 acres in only 2 years, 1955 and 1958. Acreage increased significantly after 1966 and reached a peak in 1970 when 80,000 acres were harvested. During the period 1972 to 1976, the average declined to 23,000 acres. The 1977 acreage was 20,000, and the 1978 estimate was 16,000.

Grain sorghum yields increased about 120 percent from 1940 to 1976 (Figure 34). The average yield between 1940 and 1944 was 15.8 bushels per acre, compared with 34.4 bushels between 1972 and 1976. The highest yields occurred in 1968, with an average of 40 bushels per acre. The 1977 yield was 33 bushels; 31 bushels was the estimated 1978 yield.

Figure 33. Sorghum Acreage Harvested, Louisiana, 1940-1976.

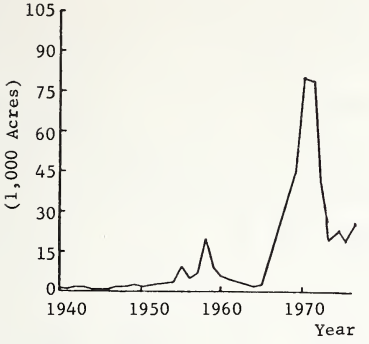


Figure 34. Sorghum Yield per Acre, Louisiana, 1940-1976.

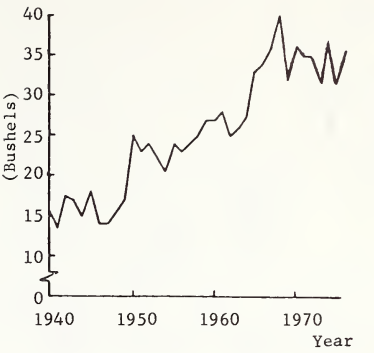


Figure 35. Total Production of Sorghum, 1940-1976.

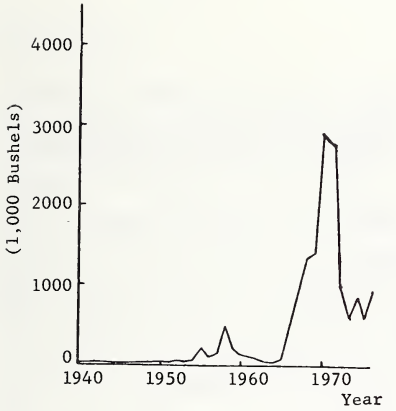
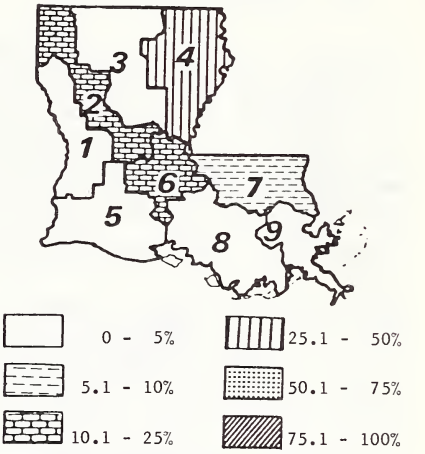


Figure 36. Concentration of Sorghum Production, by Farming Area, Louisiana, 1972-1976.



Total production of grain sorghum has increased in Louisiana, as a result of expanded acreage and higher yields (Figure 35). Production averaged 15,800 bushels from 1940 to 1944 and 795,000 bushels from 1972 to 1976. Production peaked in 1970 at 2.88 million bushels of grain sorghum. The 1977 production was 660,000 bushels, and the estimate for 1978 was 496,000 bushels.

Sorghum production has been concentrated in Farming Areas 2, 4, and 6 (Figure 36). These are also areas of concentration for beef cattle (see Figure 60). These three areas accounted for almost 85 percent of sorghum production in Louisiana from 1972 to 1976. The only other area that produced more than 5 percent of the total production was Farming Area 7.

Figure 37. Oat Acreage Harvested, Louisiana, 1940-1976.

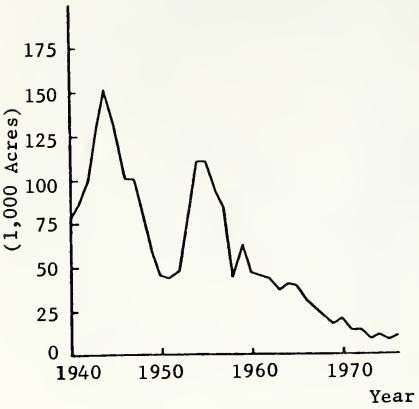


Figure 38. Oat Yield per Acre, Louisiana, 1940-1976.

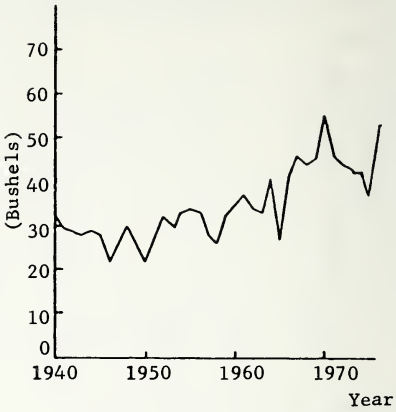


Figure 39. Total Production of Oats, Louisiana, 1940-1976.

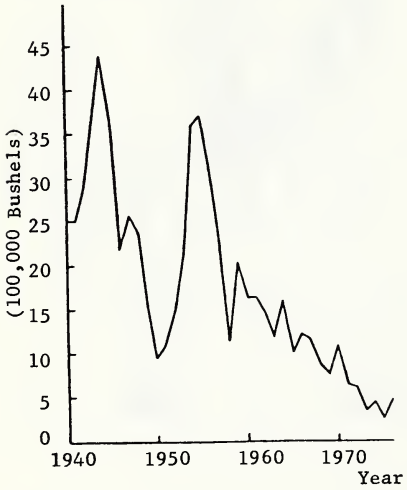
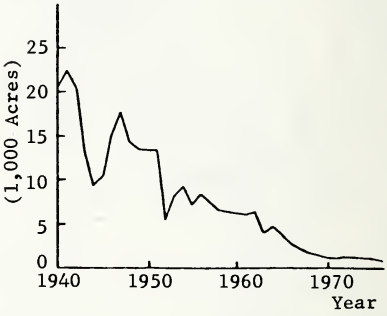


Figure 40. Strawberry Acreage Harvested, Louisiana, 1940-1976.



Oats

Harvested acreage of oats in Louisiana varied considerably during the last 36 years (Figure 37). Acreage almost doubled between 1940 and 1944, peaking at a record of 152,000 acres in 1944 then declining to 43,000 acres in 1951 before recovering to 110,000 acres in 1954 and 1955. Acreage has declined steadily since 1955, and only 12,000 acres of oats were harvested in 1972. An average of 8,400 acres was harvested in the period 1972 to 1976, compared with an average of 109,600 acres between 1940 and 1944.

Oat yields increased about 25 percent during the period under analysis (Figure 38). Yields per acre averaged 29.6 bushels per acre and 43.8 bushels per acre between 1940 and 1944 and 1972 and 1976, respectively. A record yield of 55 bushels was attained for Louisiana in 1970.

The trend in total production of oats in Louisiana primarily reflects changes that occurred in harvested acreage (Figure 39). Total production peaked in 1944, when slightly more than 4.4 million bushels were produced. On the other hand, only 264,000 bushels were produced in 1975. Total production averaged 3.2 million bushels between 1940 and 1944, compared with only 426,000 bushels between 1972 and 1976.

Detailed information is not available for the location of production of oats in Louisiana. Historically, Farming Areas 2, 4, 5, and 7 have been the major oat producing regions. Farming Area 4 is probably the leading area for oat production in Louisiana.

Strawberries

The harvested acreage of strawberries has also declined since 1940 (Figure 40). Over 20,000 acres were harvested each year between 1940 and 1942. After that period, acreage declined steadily until 1970 when it leveled off at about 1,100 acres. Considerable yearly variations in harvested acreage occurred prior to 1955. Louisiana strawberries are produced primarily for the fresh market. The mild climate results in early maturing, and the berries must compete with those produced early in other areas. In 1977, 850,000 acres were harvested.

Strawberry yields per acre more than tripled between 1940 and 1976 (Figure 41). Yields increased from 20.6 hundredweight between 1940 and 1944 to 65.2 hundredweight between 1972 and 1976. Most of the increase in yields occurred between 1963 and 1971; a record yield of 74 hundredweight per acre was achieved in 1971. The yield per acre in 1977 was 61 hundredweight. Climatic conditions account for a major part of the year-to-year variations in yields.

Total production declined during the period because of the large decrease in harvested acreage (Figure 42). Yield increases only partially offset acreage reductions. Total production peaked in 1942 at 553,700 hundredweight and fell to an average of 62,800 hundredweight between 1972 and 1976. The lowest production year between 1940 and 1976 was 1974 when 55,000 hundredweight of strawberries were produced. The 1977 production was 52,000 hundredweight.

Nearly all of Louisiana's strawberries are produced in Farming Area 7, particularly in Livingston and Tangipahoa Parishes. In earlier years many were picked one day, shipped overnight to the Chicago area, and marketed there the following day.

Strawberries are a labor intensive crop in Louisiana, produced on small

Figure 41. Strawberry Yield per Acre, Louisiana, 1940-1976.

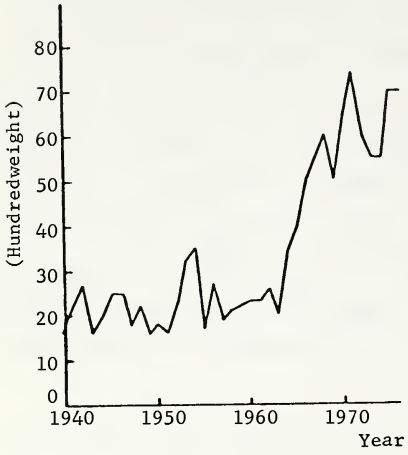
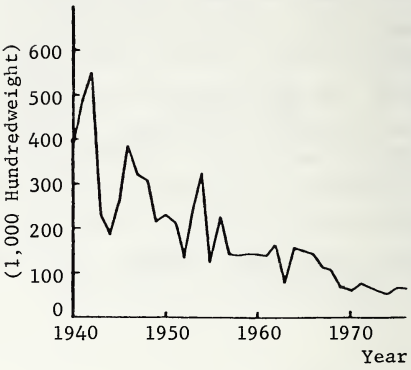


Figure 42. Total Production of Strawberries, Louisiana, 1940-1976.



farms with large families and using primarily family labor. Over the years alternate off-farm employment made labor difficult to obtain. Competition from areas producing on large farms, such as Florida, Texas, and Mexico, also contributed to the decline in acreage and production in Louisiana.

Sweet Potatoes

Except for the period between 1940 and 1946, harvested acreage of sweet potatoes generally declined between 1940 and 1976 (Figure 43). Harvested acreage averaged 97,600 acres between 1940 and 1944 and peaked at 125,000 acres in 1946. An average of only 32,000 acres was harvested between 1972 and 1976. The lowest acreage recorded during the period was 29,000 acres in 1976. The 1977 acreage was 27,000 acres and the same acreage was estimated for 1978.

Per acre yields of sweet potatoes doubled between 1940 and 1976 (Figure 44). Yields averaged 45.4 hundredweight for the 5-year period from 1940 to 1944 and increased to an average of 97.0 hundredweight for the period from 1972 to 1976. A record yield of 105 hundredweight per acre was recorded in 1974. The lowest yield during the period was 32 hundredweight in 1940. The yield for 1977 was 90 hundredweight, and 95 hundredweight was the 1978 estimate. Total production generally declined after 1945 as increases in yields were not large enough to offset the decline in acreage of sweet potatoes (Figure 45). Production averaged 4.4 million hundredweight and 3.1 million hundredweight for the periods 1940 to 1944 and 1972 to 1976, respectively. The highest level of total production occurred in 1945 when 6.7 million hundredweight of sweet potatoes were produced in Louisiana. 1977's production was 2.4 million hundredweight, and the 1978 estimate was 2.5 million hundredweight.

According to the 1974 Census of Agriculture, over 70 percent of the sweet potato acreage in Louisiana was in Farming Area 6 (Figure 46). Farming Areas 4, 5, 7, and 8 each accounted for between 4 and 10 percent of the acreage.

Irish Potatoes

Irish potatoes have never been a major crop in Louisiana. Harvested acreage of Irish potatoes declined dramatically between 1944 and 1960 (Figure 47). Acreage peaked in 1944 at 59,000 acres and declined to 2,300 acres in 1973. Acreage remained relatively stable after 1960. It averaged 2,600 acres for the period from 1972 to 1976, and 2,300 acres in 1977 and 1978.

Like sweet potatoes, the yield per acre of Irish potatoes doubled between

Figure 43. Sweet Potato Acreage Harvested, Louisiana, 1940-1976.

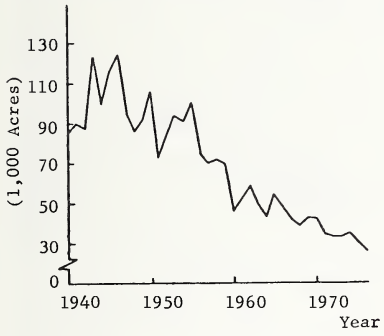


Figure 44. Sweet Potato Yield per Acre, Louisiana, 1940-1976.

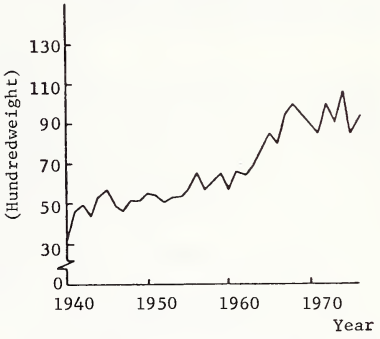


Figure 45. Total Production of Sweet Potatoes, Louisiana, 1940-1976.

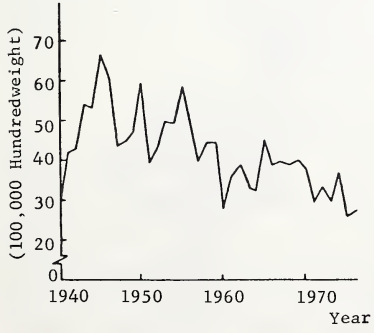
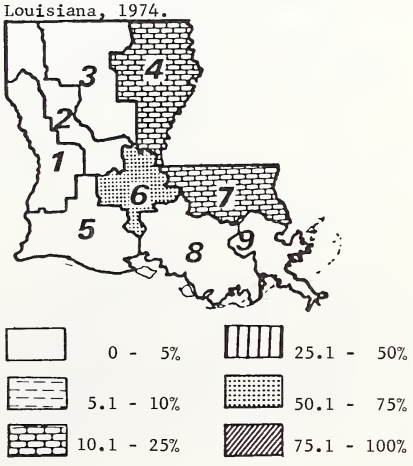


Figure 46. Concentration of Sweet Potato Acreage, by Farming Area, Louisiana, 1974.



1940 and 1976 (Figure 48). Yields averaged 35.6 hundredweight between 1940 and 1944, and 78.6 hundredweight between 1972 and 1976. The estimate for 1977 and 1978 was 75 hundredweight per acre.

Total production of Irish potatoes declined after 1944, reflecting the decrease in harvested acreage (Figure 49). Production averaged 1.7 million hundredweight between 1940 and 1944. In comparison, total production declined to an average of only 204,600 hundredweight between 1972 and 1976. The best year, in terms of total production, was 1943 when over 2.1 million hundredweight were produced. The estimate for both 1977 and 1978 was 173,000 hundredweight.

Irish potatoes are grown in all farming areas except Farming Area 9 (Figure 50). According to Census of Agriculture data Areas 6 and 7 accounted for over 60 percent of the acreage in 1974. In addition, Farming Areas 3, 4, and 8 each contained about 10 percent of the total acreage.

Figure 47. Irish Potato Acreage Harvested, Louisiana, 1940-1976.

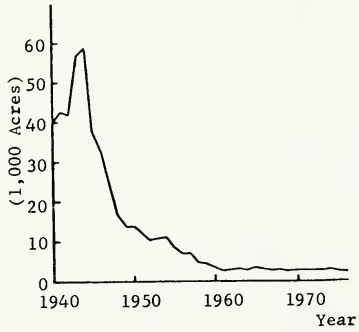


Figure 48. Irish Potato Yield per Acre, Louisiana, 1940-1976.

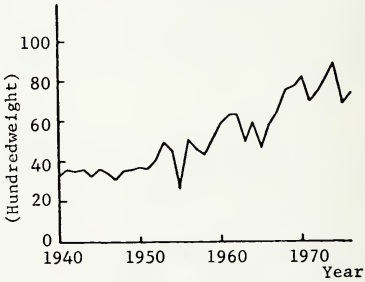


Figure 49. Total Production of Irish Potatoes, Louisiana, 1940-1976.

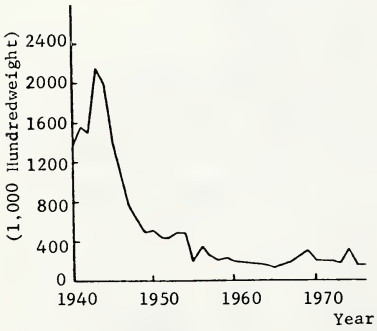
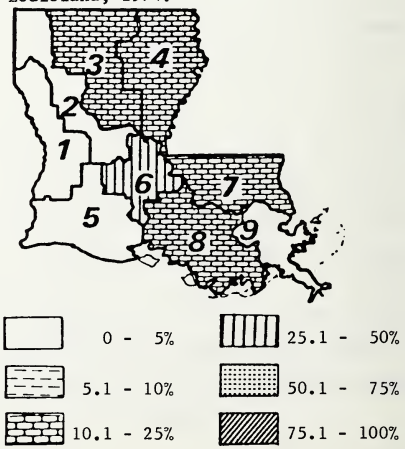


Figure 50. Concentration of Irish Potato Acreage, by Farming Area, Louisiana, 1974.



Vegetables

Many different types of truck crops are grown on Louisiana farms. However, commercial acreages of many declined over the years to the point that the Statistical Reporting Service, USDA, ceased reporting data on many of them. For example, Louisiana shallots (a small bulb onion sold in bunches) are now grown in relatively small quantities and no longer reported in official data. Thus, quantitative data are available only for watermelons, tomatoes, winter cabbage, spring snapbeans, and green peppers, and these will be discussed in this section.

Harvested acreage of the five vegetables still reported generally declined from 1940 to 1975 (Figure 51), peaking at 26,300 acres in 1946. In contrast, an annual average of only 6,940 acres was harvested between 1971 annd 1975. Annual harvested acreage was less than 10,000 acres after 1962. Most of the decline was due to decreased acreage of watermelons, tomatoes, cabbage, and snapbeans. Harvested acreage of green peppers was relatively stable during the time period.

Yields of these five truck crops increased about 42 percent during the period under consideration (Figure 52), averaging 53 hundredweight per acre between 1940 and 1944 and 72 hundredweight for the period from 1971 to 1975. Most of the increase was due to improved yields for tomatoes, winter cabbage, and snapbeans.

Commercial production of the five vegetables declined about 60 percent during the period (Figure 53). Increases in yields were not sufficient to offset decreases in acreage. Production peaked at 1.5 million hundredweight in 1944, but was below 1 million hundredweight every year after 1954. An average of only 512,000 hundredweight was produced between 1971 and 1975. Like strawberries, vegetable production in Louisiana has been a labor-intensive activity, and uncertain labor supplies and competition from other areas have been largely responsible for the decline in vegetable acreage and production in Louisiana.

Detailed data are not available on the location of vegetable production in Louisiana. Vegetables are grown in all farming areas, with Areas 6, 7, 8, and 9 accounting for a major share of the production. Because of their perishable nature and high transportation costs, commercial vegetables are generally produced near the larger metropolitan areas in the state.

Other Vegetables

Other important vegetables grown in Louisiana include cucumbers, shallots, okra, onions, garlic, eggplant, spinach, hot peppers, and sweet corn. They are grown primarily for the local fresh vegetable markets and some processing in the state. Large quantities of vegetables are marketed through farmers' markets that have been organized throughout the state.

Figure 51. Acreage of Five Vegetables, Louisiana, 1940-1975. (Five reported) 1/

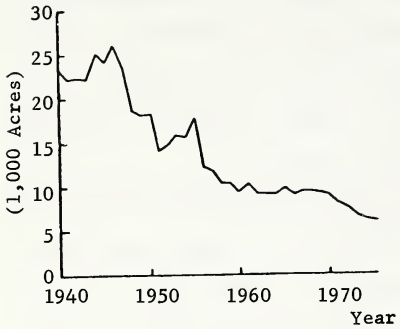


Figure 52. Vegetable Yield per Acre, Louisiana, 1940-1975. 1/

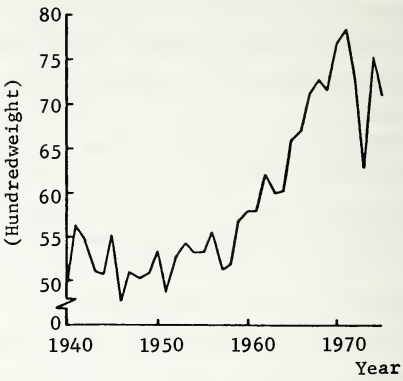


Figure 53. Production of Five Vegetables, Louisiana, 1940-1975.

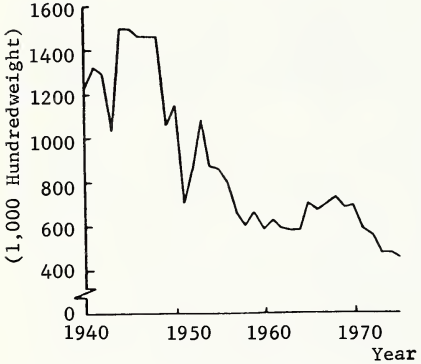
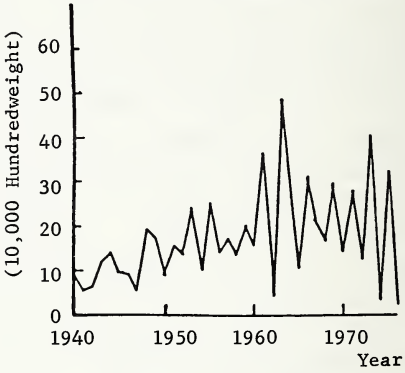


Figure 54. Total Production of Pecans, Louisiana, 1940-1976. 1/



1/ Watermelons, tomatoes, winter cabbage, spring snapbeans and green peppers only, as currently reported by the Statistical Reporting Service, USDA.

Although acreage and production data are not available, the U.S. Department of Agriculture estimated the value of these vegetables in 1975 was more than $5 million.

Fruits and Tree Nuts

Pecans

Pecans are native to Louisiana, and a major share of the total production is attributable to wild or native seedling varieties. However, improved varieties, more resistant to disease, have been developed by the Louisiana

Agricultural Experiment Station and production from the improved varieties is increasing.

Reported commercial pecan production almost doubled between 1940 and 1976 (Figure 54). Production averaged 9.4 million pounds per year from 1940 to 1944, compared with 17.8 million between 1972 and 1976. Commercial production reached a peak of almost 50 million pounds in 1963. Yearly variations in production have been very large, however, due to the 2-year cyclical nature of production. Trees usually bear a large crop about every other year rather than every year. The 1977 production was 31 million pounds, and the 1978 estimate was 13 million pounds.

The Red River Area (Farming Area 2), with a number of large pecan orchards, is the leading commercial production area in Louisiana. Other areas, especially Farming Areas 4, 5, and 6 also account for a significant part of production. Data are not available to provide more exact information on the location of pecan production in Louisiana.

Peaches

Commercial peach production in Louisiana declined considerably between 1940 and 1950 (Figure 55). Only 50,000 bushels were produced in 1950 compared with over 350,000 bushels in 1940. After 1950, production recovered somewhat and has been between 100,000 and 150,000 bushels in most years. An average of 127,200 bushels was produced from 1972 to 1976. In 1977, 135,000 bushels were harvested.

Although location of production data are not available, Farming Area 3 traditionally has been the state's major commercial peach production area. Peaches are also grown in Farming Areas 4 and 7.

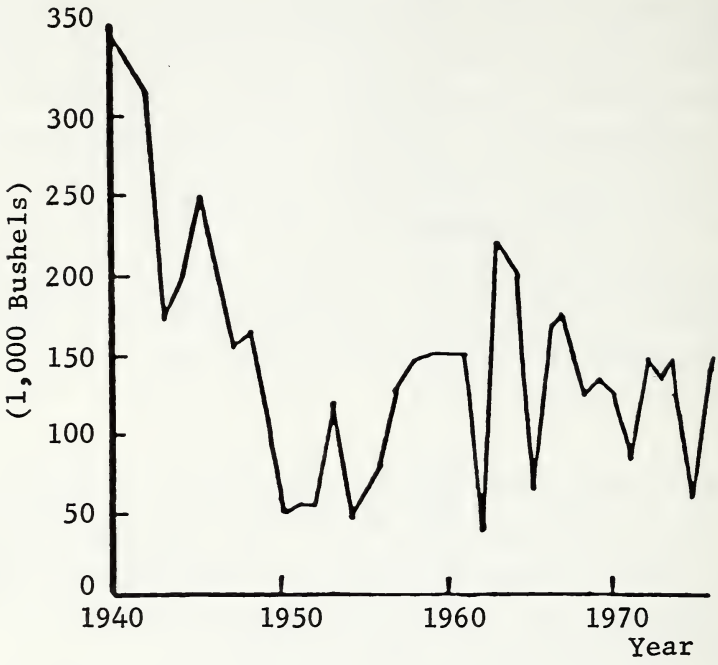
Other Fruits and Nuts

Oranges. Although data are not available on current commercial orange production levels, an average of about 277,000 boxes was harvested from 1940 to 1944. Production peaked at 410,000 boxes in 1946 and decreased rapidly after that. In 1964, the last year for which production data are available, only 8,000 boxes of oranges were harvested.

Almost all of the orange production in Louisiana occurs in Farming Area 9, beside the Mississippi River, particularly Plaquemines Parish. A frost-free climate is required for citrus production, and Plaquemines Parish, the southernmost area of Louisiana which extends into the Gulf of Mexico, comes closest to fulfulling this requirement. Occasional frosts and hurricanes have hampered the development of the citrus industry in Louisiana.

Tung Nuts. Louisiana also has a small, rapidly fading, tung nut industry. The nuts are valued for their oil which is used in paints, varnishes, and other products because it forms a water tight seal. An average of about 3,500 tons of nuts per year were harvested from 1940 to 1944. Production

Figure 55. Total Production of Peaches, Louisiana, 1960-1976.



peaked in 1952 when over 30,000 tons were harvested. Production declined after 1952, and in 1969 only 1,400 tons were harvested. Production data are not available for later years. Virtually all the tung nuts are produced in Farming Area 7, especially Tangipahoa, St. Tammany, and Washington Parishes.

Nursery and Greenhouse Products

A 1977 study indicated a total of 3,843 acres of nursery stock in Louisiana in 1977.[7] This acreage involved some 49 parishes. Most of the acreage (87 percent) is concentrated in six parishes—St. Tammany, Tangipahoa, Washington, Rapides, Lafayette, and St. Landry.

The nursery industry has become an increasingly important segment of Louisiana's economy. In 1977 there were 874 certified nurserymen in the state. The value of sales of nursery and greenhouse products at the grower level totaled almost $8 million for 1977. As a source of farm income these

[7]Law, Jerry M., "Economic Importance of Louisiana's Nursery Industry," *Louisiana Rural Economist,* Volume 40, No. 3, August 1978.

crops rank sixth among all crops and second among horticultural crops grown in the state.

The economic importance of the nursery industry in Louisiana is also reflected in the activities of numerous agribusiness firms which serve the input and marketing needs of the state's nurserymen. In 1977 there were 2,856 separate places of business in Louisiana, beyond the grower level, engaged in handling nursery products and offering services involving nursery products. Approximately half held dealer permits to sell potted plants and nursery stock. The remaining businesses included retail florists, horticultural service firms, landscape contractors, tree surgeons, and wholesale florists. These firms had individuals qualified to hold licenses issued by the Horticulture Commission of Louisiana.

V. LOUISIANA LIVESTOCK: TRENDS IN NUMBERS, PRODUCTION, AND LOCATION OF PRODUCTION

All Cattle and Calves

There was a general increase in the number of cattle and calves in Louisiana between 1940 and 1976 (Figure 56). Between 1940 and 1944 cattle numbers averaged 1.3 million head, compared to 1.8 million head for the period from 1972 to 1976. The number of cattle and calves increased dramatically from 1950 to 1954, indicating that the livestock industry of Louisiana grew substantially during that period.

Several cycles in the number of cattle and calves in Louisiana can be identified. Cycle peaks occurred in 1945, 1954, and 1965. The number of cattle and calves reached a record level of 1.98 million head in 1965. Cattle numbers increased from 1.6 million head in 1971 to 1.8 million head in 1976 but declined to 1.7 million head in 1977.

The increase in cattle numbers has been accompanied by a general increase in the production (pounds) of cattle and calves (Figure 57). During the period 1940-1944, an average of 181.5 million pounds were produced. Production increased to an average of 501.6 million pounds for the years 1972 to 1976. Total production reached an all-time high in 1972 when 547.1 million pounds were produced. Production was 467.7 million pounds in 1977. A major expansion in cattle production occurred between 1949 and 1955, reflecting the large increase in cattle numbers during that period.

Cattle and calves are produced in all areas of Louisiana (Figure 60). According to 1974 Census of Agriculture data, Farming Areas 2, 4, and 7 had the largest number of cattle and calves, 17.6, 14.5, and 18.5 percent, respectively, of the total number of cattle and calves in Louisiana. In contrast, Farming Area 9 accounted for less than 1 percent of the cattle in the state.

Hogs and Pigs

The number of hogs and pigs in Louisiana peaked in 1944 at just over one million head, and then generally declined until 1965 (Figure 58). Hog and pig numbers have been relatively stable since 1965. Hog numbers averaged almost 904,000 between 1940 and 1944, compared with only 155,400 head for the years 1972 to 1976. In 1977 the number was up to 160,000 head.

Total production of hogs and pigs also declined until about 1961 (Figure 59). Production peaked for the period from 1940 to 1976 at 178.4 million pounds in 1943 and averaged 154.9 million pounds between 1940 and

Figure 56. Number of Cattle and Calves, Louisiana, 1940-1976.

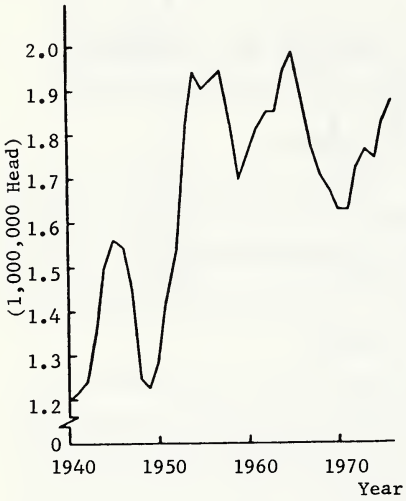


Figure 57. Total Production of Cattle and Calves, Louisiana, 1940-1976.

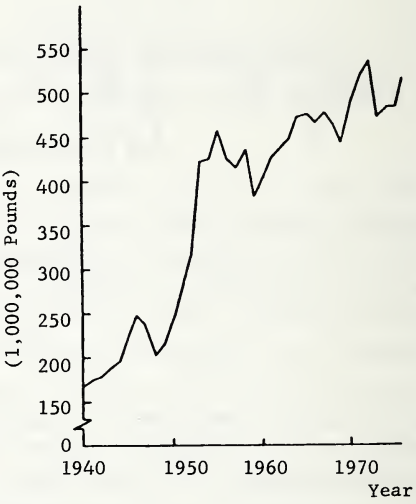


Figure 58. Number of Hogs and Pigs, Louisiana, 1940-1976.

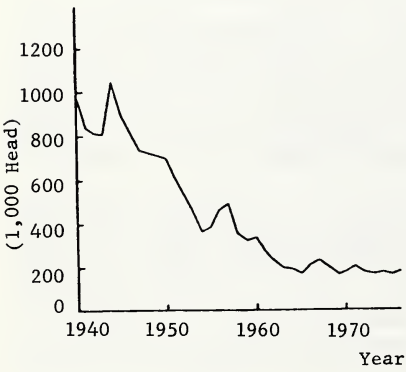
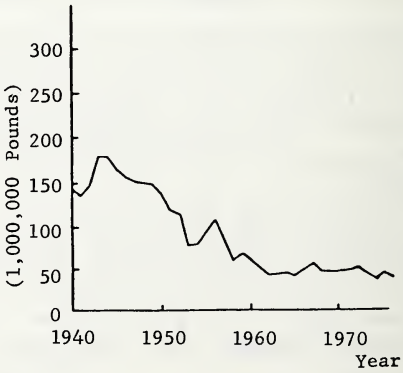


Figure 59. Total Production of Hogs and Pigs, Louisiana, 1940-1976.



1944. Production declined between 1943 and 1961, and was relatively stable after 1961, averaging 43.6 million pounds between 1972 and 1976. In 1977 production was 43.2 million pounds.

In 1974, Farming Area 4 accounted for almost 39 percent of the hogs and pigs in the state (Figure 61). Hog production is also relatively important in Areas 2, 3, 6, and 7.

Figure 60. Concentration of Cattle and Calves, by Farming Area, Louisiana, 1974.

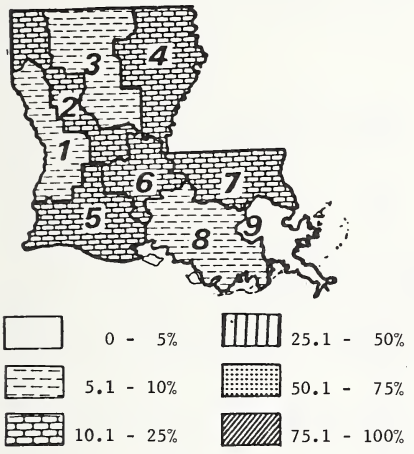
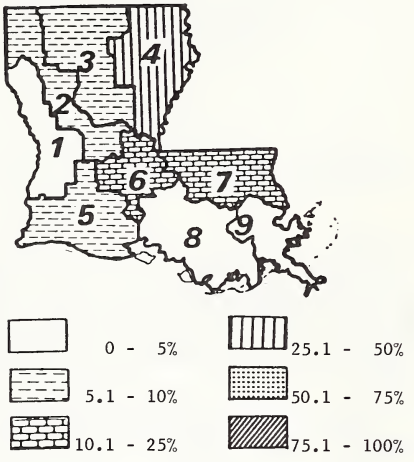


Figure 61. Concentration of Hogs and Pigs, by Farming Area, Louisiana, 1974.



Milk and Milk Cows

Some fluctuation occurred in the number of milk cows in Louisiana between 1940 and 1954 (Figure 62). The number of milk cows ranged between 283,000 and 310,000 head during that 15-year period and averaged 289,600 between 1940 and 1944. Since 1955, however, there has been a gradual but continuous decrease in the number of milk cows in the state. By 1975, the number had declined to 136,000. The average number of milk cows in Louisiana between 1972 and 1976 was 142,000, or about 50 percent of the number that existed at the beginning of the period under study. In 1977 the number of milk cows was 132,000 head.

While the number of milk cows declined, milk production per cow increased significantly (Figure 63). Production per cow averaged only 2,292 pounds during the years 1940 to 1944. Production per cow increased gradually until 1955 and then increased at a much faster rate. Milk production per cow averaged 7,610 pounds between 1972 and 1976 and reached a record level of 8,258 pounds per cow in 1976, an increase of 260 percent over the 1940 to 1944 average.

A significant part of the decline in the number of milk cows and the

increase in milk production per cow can be explained by the decrease in the number of low-producing and/or non-commercial herds. In 1940, the amount of milk consumed on farms was greater than the quantity of milk sold by Louisiana farmers. This reflects the common practice of maintaining a milk cow on the farm to meet family consumption needs. As this practice declined, the number of milk cows declined and the remaining commercial herds had a higher level of milk production per cow.

The increase in milk production per cow has, in general, more than offset the decline in cow numbers, as production of milk in Louisiana generally increased during the period (Figure 64). Total production averaged 664.2 million pounds for the period from 1940 to 1944. For the period from 1972 to 1976, production averaged 1,079 million pounds, or 64 percent more

Figure 62. Number of Milk Cows, Louisiana, 1940-1976.

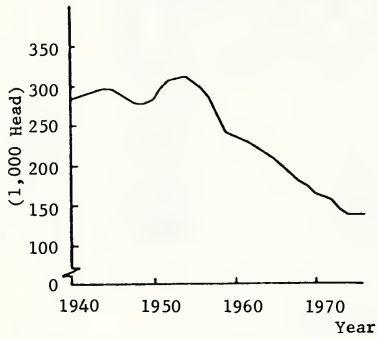


Figure 63. Production per Milk Cow, Louisiana, 1940-1976.

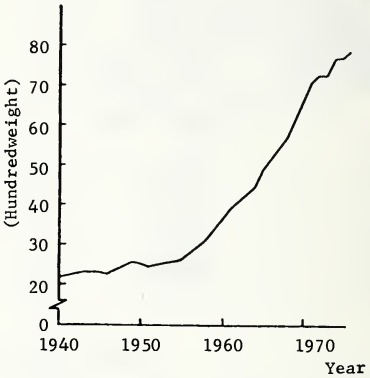


Figure 64. Total Production of Milk, Louisiana, 1940-1976.

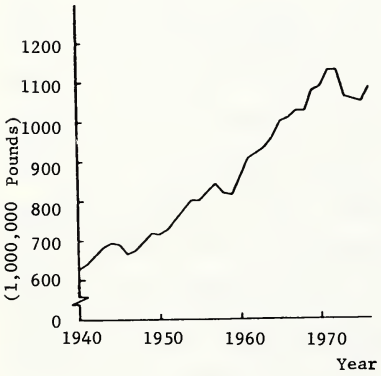
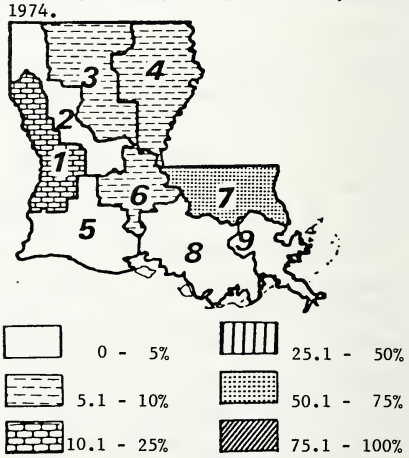


Figure 65. Concentration of Milk Cows, by Farming Area, Louisiana, 1974.



than in the earlier period. This increase in production was accomplished with about one-half as many cows. Total production declined between 1973 and 1975 but recovered somewhat in 1976. Production was 1,090 million pounds in 1977.

In 1974, over 50 percent of the milk cows in Louisiana were in Farming Area 7, which is near the New Orleans and Baton Rouge metropolitan areas (Figure 65). Farming Area 1 accounted for 12.7 percent of the dairy cows, with the remaining milk cows located throughout the other areas of Louisiana.

Laying Chickens and Eggs

The number of laying chickens in Louisiana has undergone two cycles since 1940 (Figure 66). The number of laying chickens peaked at more than 4.1 million in 1944, declined to less than 2.4 million in 1955 and then increased again to almost 3.9 million in 1969. After 1969, the number of laying chickens decreased to an average of 3 million for the period from 1972 to 1976. The number of laying chickens had decreased to 2.6 million in 1977.

The number of eggs per layer per year increased steadily between 1940 and 1976 (Figure 67). An average of 98 eggs per laying hen per year from 1940 to 1944 increased to 226 eggs per layer between 1972 and 1976. In 1976, the average was 237 eggs per layer, but it dropped to 227 eggs in 1977.

Total production of eggs in Louisiana increased dramatically between 1955 and 1976 because of the increase in number of eggs per layer (Figure 68). About 680 million eggs per year were produced in Louisiana between 1972 and 1976. Annual production averaged only 348 million eggs between 1940 and 1944. Egg production peaked for the period from 1940 to 1976 in 1969 when about 839 million eggs were produced in Louisiana. Over 598 million eggs were produced in 1977.

. According to 1974 census data, laying chickens were concentrated in Farming Area 7 (Figure 69). Almost 60 percent of the layers were located in that area. Farming Areas 2 and 3 accounted for about 17 and 10 percent, respectively. Farming Area 1 accounted for about 5.5 percent, and all other Farming Areas had less than 5 percent of the layers in 1974.

Broilers

The period 1950-1976 was one of major expansion for the Louisiana broiler industry (Figure 70). An average of 1 million broilers raised in Louisiana during the 1940's increased steadily to an average of more than 54 million between 1972 and 1976. Over 63.6 million broilers were raised in Louisiana in 1977.

Total production of commercial broilers (in pounds) exhibited the same rapid growth pattern (Figure 71). An average of about 2.4 million pounds

Figure 66. Number of Laying Chickens, Louisiana, 1940-1976.

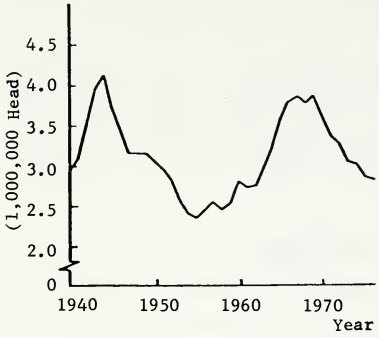


Figure 67. Number of Eggs per Layer, Louisiana, 1940-1976.

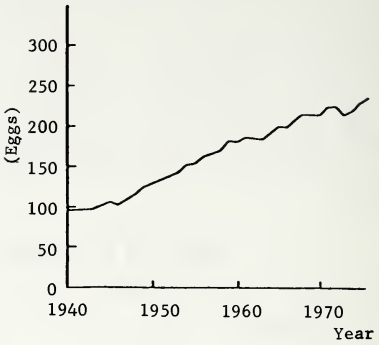


Figure 68. Total Production of Eggs, Louisiana, 1940-1976.

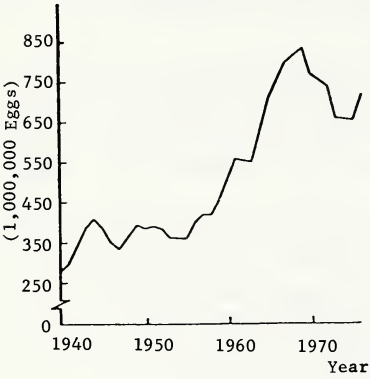
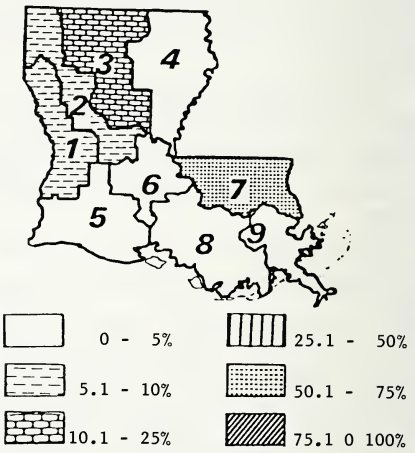


Figure 69. Concentration of Laying Chickens, by Farming Area, Louisiana, 1974.



per year were produced between 1940 and 1944, compared with 199.5 million pounds per year between 1972 and 1976. Almost 235.5 million pounds of broilers were produced in 1977, the largest production year in Louisiana history.

Farming Areas 1, 2, and 3 were the major broiler producing areas in 1974 (Figure 74). They produced about 29, 12, and 55 percent of the broilers, respectively. Other farming areas accounted for less than 5 percent of the broilers.

Sheep and Lambs

The number of sheep and lambs in Louisiana has declined considerably since 1940 (Figure 72). In 1942, there were 296,000 head of sheep and lambs on Louisiana farms, and the average for the period from 1940 to

Figure 70. Number of Commercial Broilers, Louisiana, 1940-1976.

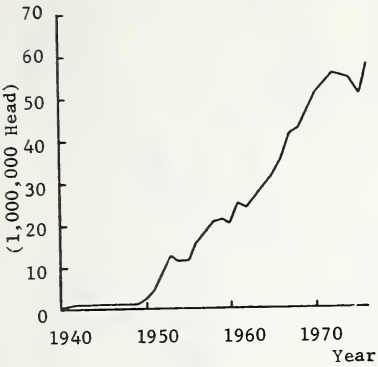


Figure 71. Total Production of Commercial Broilers, Louisiana 1940-1976.

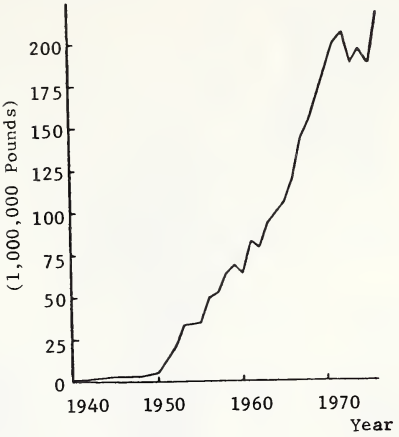


Figure 72. Number of Sheep and Lambs, Louisiana, 1940-1976.

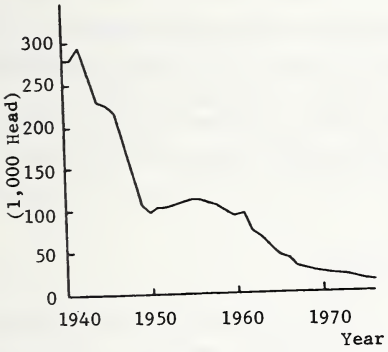
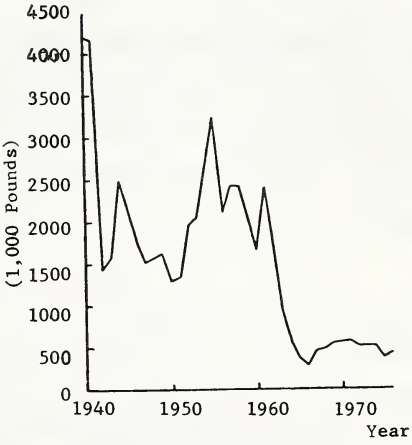


Figure 73. Total Production of Sheep and Lambs, Louisiana, 1940-1976.



1944 was 269,000 head. Sheep and lamb numbers fell below 50,000 for the first time in 1965, and the average for the period from 1972 to 1976 was only 17,600 head. By 1977 numbers had declined to 13,000 head. Sheep do not perform well in Louisiana because of the warm, humid climate. This factor is largely responsible for the decline in the number of sheep and lambs.

Total production of sheep and lambs also declined, especially during the period from 1955 through 1966 (Figure 73). A record high level of production for the period of 3.2 million pounds in 1955 was followed by a

Figure 74. Concentration of Broilers, by Farming Area, Louisiana, 1974.

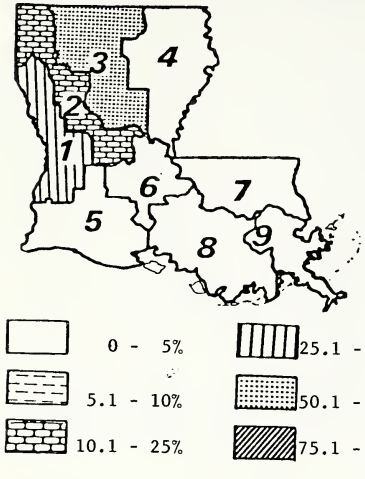
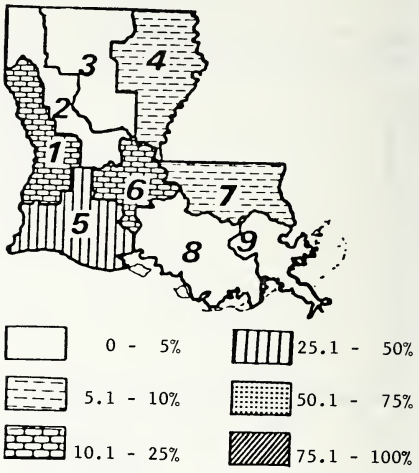


Figure 75. Concentration of Sheep and Lambs, by Farming Area, Louisiana, 1974.



record low for the 35-year period of only 280,000 pounds in 1966. Since that time, production has recovered slightly and averaged 458,800 pounds for the years 1972 to 1976. The increase in pounds produced since 1966 was achieved even though the number of sheep and lambs continued to decline during the period. Over 490,000 pounds were produced in 1977.

Slightly more than 40 percent of Louisiana sheep and lambs were in Farming Area 5 in 1974 (Figure 75). Areas 1 and 6 ranked second and third with 19.3 and 17.5 percent, respectively.

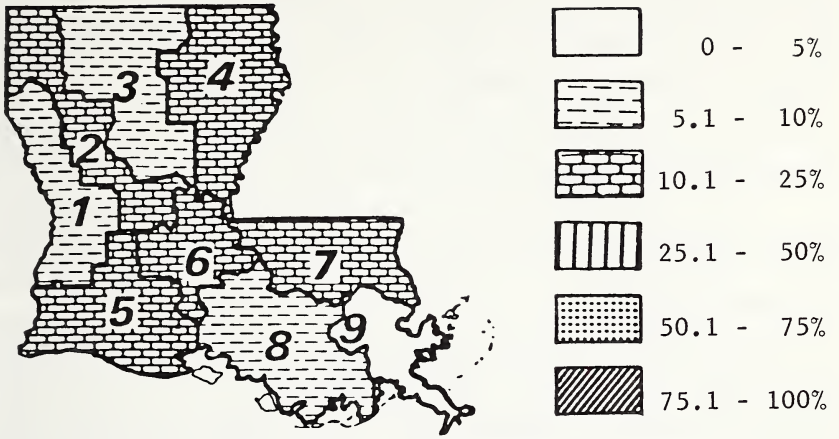
Horses and Mules

Between 1940 and 1974 the number of horses and mules in Louisiana declined from 317,000 to 15,000. Most of the horses and mules used as workstock in earlier years have been replaced by tractors. Most of the remaining horses are used primarily for pleasure riding and working cattle. A new facet of the horse industry is developing, however. A growing number of quarter horse and thoroughbred farms are producing race horses. Horse racing is a popular leisure activity in Louisiana, and an increasing number of race tracks are operating in Louisiana and neighboring states. The race horse industry will probably continue to grow in the future. Figure 76 shows the concentration of horses in each farming area for 1974.

VI. LOUISIANA'S FORESTS

Forestry, or timber production, is a specialized type of agriculture. Trees are planted and harvested like other agricultural crops, with the major difference being the time span between planting and harvesting. About 12

Figure 76. Concentration of Horses, by Farming Area, Louisiana, 1974.



years are required between the planting and harvesting of pulpwood, while a minimum of about 40 years is required for sawtimber. Louisiana forests are increasingly managed to improve yields and quality of the timber crop. Management and cultural practices have become more important in recent years as new seedling forests replace the virgin forests harvested in the past.

Forestry is an important part of the Louisiana economy. About 15 million acres, comprising 50 percent of the state's area, are forested, and over 14 million acres are classified as commercial forest. Both softwood and hardwood forests are found in Louisiana. Softwood forests comprise about 54 percent of the growing timber stock, and hardwood forests account for the other 46 percent. Pine is the most important softwood variety, accounting for about 87 percent of the softwood timber. Major hardwood varieties are oak and sweetgum. Together they make up about two-thirds of the hardwood growing stock. Other major commercial varieties of trees in Louisiana include red cedar, cypress, hickory, ash, cottonwood, willow, elm, and pecan.

Generally speaking, the softwood forests are located in the hilly upland regions of the state, particularly Farming Areas 1, 3 and 7. Hardwood forests are located in the delta areas of the major rivers and bottom lands along lakes and streams. The extreme southern part of the state bordering the Gulf has few if any commercial forests.

Land area in commercial forests decreased from 16 million acres in 1960 to 14.5 million in 1974. This represents a 9 percent decrease in commercial forest land in the state. Nevertheless, the volume of growing timber has

steadily increased in Louisiana. For example, the growing stock of softwoods increased 31 percent between 1964 and 1974. This was only partially offset by a 7 percent decrease in the growing stock of hardwoods during the same period. Many acres of hardwood forests located near populated areas and major farming areas have been cleared to increase cropland and for urban and industrial development. This has caused a decrease in the hardwood growing stock in Louisiana.

Unlike many other areas of the U.S., the rate of timber growth in Louisiana is greater than the rate of timber harvested. For example, growing stock increased by 928.8 million cubic feet in 1974 compared to 601.4 million cubic feet harvested during the same year. This represents a net increase of 327 million cubic feet in 1974. If this favorable growth pattern continues, the wood product industries will be favorably endowed in the coming years.

Acreage of commercial forests in each farming area is presented in Table 11. Over 50 percent of the land in Farming Areas 1, 2, 3, and 7 is in commercial forests. About two-thirds of Louisiana's commercial forests are located in these four farming areas. On the other hand, forests occupy less than 20 percent of the total area in Farming Areas 5 and 9 in south Louisiana.

Only 7 percent of Louisiana forest land is publicly owned (Table 11). Public ownership includes forest lands owned by federal, state, parish, and municipal governments. The proportion of forest land in public ownership is higher in Farming Areas 2 and 3 because Kisatchie National Forest is located in those areas, extending also into Farming Area 1.

Forest industry firms own about 26 percent of Louisiana's forest land,

Table 11.—Area in commercial forests and forest ownership, by farming area, Louisiana, 1974

Farming Area	Commercial Forests		Commercial Forest Ownership			
	Acreage (1000 acres)	Percent of Total Area	Public	Forest Industry	Farms	Private
			Percent			
1	2216.9	77.3	5.5	34.4	8.3	50.8
2	1998.3	64.0	15.4	13.3	15.6	55.7
3	3425.4	82.4	10.2	35.3	14.3	40.2
4	1718.8	39.2	5.0	38.2	14.0	42.8
5	696.7	16.7	1.5	22.9	8.5	67.1
6	814.0	41.7	2.8	15.5	26.5	55.2
7	1950.1	59.4	2.3	24.3	19.8	53.6
8	1629.7	34.1	3.1	6.8	12.6	77.5
9	76.8	3.3	4.9	0	6.3	88.8
State*	14,526.0	46.8	7.0	25.9	14.5	53.1

*Farming Area totals may not sum to state totals due to rounding errors.

Source: Jacqueline M. Earls, *Forest Statistics for Louisiana Parishes*, Forest Service Resource Bulletin SO-52, Southern Forest Experiment Station, New Orleans, Louisiana, 1975.

with ownership concentrated in Farming Areas 1, 3, 4, and 7. Farmers own 14.5 percent of the commercial forest land while other private individuals and businesses own about 53 percent.

Louisiana's timber resources are utilized mainly for pulpwood, sawtimber, and related products. Data in Table 12 show the quantities of timber harvested by primary uses in 1974. More than 1,196 million board feet were harvested for sawtimber, and 3.7 million cords were harvested for pulpwood. Pine accounted for about 77.5 percent of the harvested sawtimber and 73 percent of the harvested pulpwood. Oak was the most important variety of hardwood sawtimber, accounting for about 10 percent of sawtimber harvested in 1974.

More timber was harvested for both sawtimber and pulpwood in Farming Area 3 in 1974 than any other area. Area 3 accounted for over 34 percent of the harvested sawtimber and 32 percent of the harvested pulpwood in 1974. Areas 1, 2, 3, and 7 combined accounted for 81 percent of the harvested sawtimber and 80 percent of the harvested pulpwood.

Income received by public and private landowners from the sale of timber in 1974 was about $110.6 million. Over $36 million in timber was harvested in Farming Area 3, and about $22 million from Farming Area 7. The value of harvested timber was in excess of 5 million dollars in all farming areas except Areas 6, 8, and 9.

The leading parish in terms of the value of harvested timber in 1974 was Winn Parish in Area 3. About $8.4 million of timber was harvested, and pine accounted for about 86 percent of the total. Winn Parish ranked first in volume of sawtimber harvested and eighth in pulpwood harvested.

Table 12.—Amount of sawtimber and pulpwood harvested and total stumpage value of harvested timber, by farming area, Louisiana, 1974

Farming Area	Timber Harvested		
	Sawtimber (1,000 bd. ft.)	Pulpwood (1,000 st. cords)	Total Value ($1,000)
1	180,022.8	823.7	$19,118.1
2	133,822.2	568.9	13,596.0
3	416,263.1	1,214.9	36,367.2
4	138,139.8	455.0	9,996.2
5	24,783.2	174.3	6,473.3
6	43,143.6	97.5	2,363.0
7	242,818.7	409.5	21,972.7
8	17,270.9	10.1	726.7
9	191.2	*	9.2
State Total**	1,196,455.5	3,753.9	$110,622.4

*Less than 500 cords.

**Farming area totals may not sum to state totals due to rounding.

Source: *Timber and Pulpwood Production in Louisiana: 1974*, Louisiana Forestry Commission, Baton Rouge, Louisiana.

Beauregard Parish in Area 1 was the leading parish for harvested pulpwood. Livingston Parish (Area 7) ranked second behind Winn Parish in terms of the value of harvested timber. Other parishes in which the value of harvested timber was more than $5 million in 1974 were Natchitoches, Sabine, and Union.

Forestry is an important part of agriculture in Louisiana today. In some parishes the value of harvested timber is greater than the value of all other agricultural products marketed. Forestry provides an excellent production alternative for areas not well suited for other agricultural production because of topography or soil characteristics and provides the basic resource needed to support the wood products industry in the state. The importance of the wood products industry and other agricultural business activities is discussed in Section VIII.

VII. AQUACULTURE[8]

Louisiana is the leading aquaculture state in the nation in acres devoted to production of aquatic food animals. Currently, close to 50,000 acres are devoted to crawfish farming alone, while there are only about 55,000 acres devoted to catfish farming in all the states combined. During the 1977-1978 season an estimated 40 million pounds of crawfish were harvested. Approximately 70 percent of the total was wild-caught from the Atchafalaya Basin, and 30 percent came from ponds. At a conservative price of 50 cents per pound, the value of the commercial catch came to $20 million. The recreational catch was estimated at 5.6 million pounds or $2.8 million, bringing the total value of the crawfish catch to $22.8 million. This figure represents only the dollar value at harvest. The crawfish industry produces far more revenue when one considers other segments such as processing, retailing, wire for traps, boats, motors, etc.

Expenses to grow crawfish in rice fields are relatively low. Major expenses include wire to build traps, bait, and labor for harvesting. Crawfish are not fed, and fields are not refertilized. Crawfish feed on decaying rice hay and on micro-organisms

The acreage increase in crawfish farming has been dramatic, from only 6,000 acres in 1966, to 18,000 acres in 1970, to 45,000 in 1976, to close to 50,000 in 1978.

A major trend is underway in crawfish farming—double cropping rice and crawfish. Until 1975 some rice farmers grew crawfish in rice fields on a hit-or-miss basis. Crawfish, in some cases, were not stocked but came in naturally. If rain fell at the right time (in the fall of the year), the rice farmer

[8]Material obtained from Dr. James Avault, Professor, School of Forestry and Wildlife Management, LSU Agricultural Experiment Station, Baton Rouge.

frequently had a crop of crawfish. Rice farmers were reluctant to grow crawfish seriously for a variety of reasons. Bait for trapping had to be purchased and stored in a freezer. Labor for harvesting was not always available. And there was no serious research to answer the farmer's many problems, such as the effect of rice pesticides on crawfish.

In spite of these problems, the number of rice farmers double cropping rice and crawfish has increased. During the 3 years from 1975 to 1977, when prices were low for rice, prices were high for crawfish. Farmers often received 90 cents a pound live weight for crawfish at the begnning of the season. Later in the season they received 60 cents, and toward the end of the season 35 to 45 cents. With good management rice farmers can produce 1,000 pounds of crawfish per acre. Assuming an average price of 60 cents, gross returns are $600 per acre.

Table 13.—Status of freshwater aquaculture in Louisiana, 1976

Farm Input	Commodity			
	Crawfish	Catfish	Minnows	Crickets & Worms
No. farms	334	105	35	50
Acreage	45,000	6,500	—	—
No. employed on farm	1,002	210	70	150
No. involved in processing	300	50	70	150
Jobbers	30	10	10	10
Retail business	500	100	300	300

Source: LSU Cooperative Extension Service.

The state's second largest aquaculture acreage is devoted to catfish (see Table 13). The culture of small pet turtles and of minnows, crickets, and worms for fishing bait represents a substantial portion of the aquaculture income in Louisiana, and alligator farming is rapidly becoming important. Another growing segment of the aquaculture economy is the oyster industry; in 1978 some 88,000 acres of public water bottoms were privately leased for oyster culture.

VIII. LOUISIANA'S AGRIBUSINESS SECTOR

The preceding sections of this bulletin describe the size and importance of the farm and timber production sectors in the Louisiana economy. Production data, however, only partially account for the total economic activity associated with agriculture and forestry. Marketing and other agricultural services are also important aspects. As farms increase in size, they often become more specialized. Farmers now purchase many of the basic inputs and services needed to produce and market their products. The movement away from self-sufficiency on the farm and toward more specialization in production has created a need for new types of agriculturally oriented business firms. These farm-supporting business firms are

usually referred to as the "agribusiness sector" of the economy.

Generally speaking, agribusiness firms perform one of three basic functions. First, they provide the inputs or materials needed to produce farm products. For example, agribusiness firms provide seed, fuels and lubricants, machinery, feed, fertilizer, herbicides, insecticides, tires, building materials, and other products used on farms. Second, firms provide specialized services to farmers, such as financing, crop and livestock insurance, aerial application of chemicals and fertilizers, insect scouting, and contract harvesting of crops. And third, agribusiness firms are involved with advertising, processing, transporting, storing, packaging, and merchandising farm products. Thus, the agribusiness sector includes all firms involved in the manufacture and distribution of farm supplies, the production, assembly, storing, processing, and distribution of farm products and items manufactured from them.

Perhaps the scope of the agribusiness sector can be best illustrated with an example. Dairy farmers require many products and services to produce milk. They need feed, seed, herbicides, veterinary supplies and services, milking equipment and facilities, legal and accounting services, fencing supplies, and other goods and services. Many of these supplies, materials, and services are purchased from local agribusiness firms. Once produced, the milk is transported to processing plants for pasteurization or the manufacture of other dairy products such as cheese and butter. Milk plants also require supplies and services of all kinds, including legal, accounting, and advertising services. After processing, milk products are then transported to grocery stores and other outlets for final distribution to consumers. The milk processing plants, transportation firms, and even grocery stores are part of the agribusiness complex. Production, processing, and distribution of other agricultural products are equally dependent on the agribusiness sector. Hence, the agribusiness sector includes much more than the farm firms that produce the basic agricultural commodities. Figure 77 illustrates some of the products and services provided by agribusiness firms and their basic relationship to the farm firm.

The agribusiness sector is of prime importance to the economy of the United States. It has been estimated that agribusiness accounts for about 20 percent of America's gross national product (GNP—a measure of the total market value of all final goods and services produced in the economy in a given year).[9] In other words, about one-fifth of the total economic activity in the U.S. is conducted by firms in the agribusiness sector of the economy. This clearly indicates the size, scope, and importance of agriculture-related business in the United States.

---

[9]Schluter, Gerald E., "Food and Fiber Sector Generates Nearly a Fourth of All Business Activity," *The Farm Index,* U.S. Department of Agriculture, Washington, D.C., May 1974.

Figure 77.—The agricultural-agribusiness industry. (Source: Fred H. Wiegmann, "Farming and Agribusiness in the Louisiana Economy," *Louisiana Economist,* Vol. 33, No. 2, May 1971.)

Data are not readily available to present a complete analysis of the size and importance of the agribusiness sector in Louisiana. However, some pertinent information is available from U.S. census reports. The reader should note that the firms and industries discussed below are associated with agriculture in general and not just Louisiana agriculture. For example, food stores sell products not all of which are produced or processed in Louisiana, and sugar refineries in Louisiana process imported as well as Louisiana sugar. However, the firms and industries are closely related to agriculture and forestry and are considered part of the agribusiness complex in the state.[10]

Data from the *Census of Manufactures* indicate that over 1,700 agriculture-related manufacturing firms conducted business in the state in 1972 (Table 14). This represented about 47 percent of all manufacturing firms in Louisiana. There were more firms in the Lumber and Wood Products and the Food and Kindred Products industries than in any other manufacturing industry in the state in 1972. Furthermore, the two industries accounted for almost 38 percent of all manufacturing firms that employed 20 or more workers. This shows that agribusiness manufacturing firms are not only numerous in Louisiana—many of them are also relatively large.

The Food and Kindred Products industry was also the largest employer among all manufacturing industries in Louisiana in 1972, employing more than 28,000 people (Table 15). The lumber and paper industries were also major employers, providing jobs for 14,700 and 15,500 people, respectively. In total, the agribusiness manufacturing firms provided jobs for more than 70,000 people, or about 39 percent of all people employed in manufacturing during the census year. The chemical industry and the transportation equipment industry are also important industries. Each employed more than 20,000 people in Louisiana in 1972.

In terms of 1972 annual payroll and total sales, the Food and Kindred Products industry ranked third in the state, and the Paper and Allied Products industry was fourth. The Lumber and Wood Products industry ranked sixth in payroll and sales. In all, the agribusiness manufacturing firms accounted for 31.5 percent of the manufacturing payroll and 31 percent of the total sales of all manufacturing firms in 1972.

Data in Tables 14 and 15 indicate that agribusiness manufacturing firms

---

[10]For a description of that part of the agribusiness sector that is more directly associated with agricultural production in Louisiana, see: S.D. Reiling and L. J. Guedry, "The Economic Importance of Agriculture in Louisiana," *Louisiana Agriculture,* Louisiana Agricultural Experiment Station, Vol. 20, No. 4, 1977 and Fred H. Wiegmann, "Farming and Agribusiness in the Louisiana Economy," *Louisiana Rural Economist,* Vol. 33, No. 2, May, 1971.

are more labor intensive than other manufacturing industries. That is, the agribusiness industries apparently require more labor per dollar of output. For example, one worker produced an average of about $50,000 of output in the agribusiness manufacturing categories, compared to an average of $71,200 of output per worker produced in other manufacturing categories. Agribusiness manufacturing is important in providing employment opportunities in the Louisiana economy.

Agribusiness firms are also found in the wholesale, retail, and service sectors of the economy. Census data for these sectors are summarized in Table 16. Agribusiness firms in the wholesale sector numbered 1,649 in 1972 and employed over 27,200 workers. Wholesale grocery establishments were the most numerous and employed the most workers. In all, agribusiness wholesale firms paid $129 million in wages and recorded sales of $3.2 billion in 1972.

An additional 7,000 agribusiness firms were included in the retail and service sectors. They employed about 33,800 workers and paid almost $158 million in wages in 1972. In total, these firms had more than $5.2

Table 14.—Number of agribusiness and other manufacturing establishments, Louisiana, 1972*

Major Industry Group	Establishments			
			With 20 or More Employees	
	Number	Percent of Total	Number	Percent of Total
Agribusiness Manfacturing				
Food and Kindred Products	566	15.5	285	25.1
Textile Mill Products	12	0.3	7	0.6
Apparel and Related Products	91	2.5	57	5.0
Lumber and Wood Products	930	25.4	142	12.5
Furniture and Fixtures	65	1.8	15	1.3
Paper and Allied Products	62	1.7	52	4.6
Sub-total	1,726	47.2	558	49.1
Other Manufacturing				
Printing and Publishing	467	12.8	70	6.2
Chemicals and Allied Products	212	5.8	98	8.6
Petroleum and Coal Products	58	1.6	33	2.9
Stone, Clay and Glass Products	221	6.0	73	6.4
Primary Metal Industries	28	0.8	19	1.7
Fabricated Metal Products	201	5.5	72	6.3
Machinery, except electrical	293	8.0	71	6.3
Electric and Electronic Equipment	45	1.2	15	1.3
Transportation Equipment	171	4.7	73	6.4
Misc. Manufacturing Industries	236	6.4	53	4.8
Sub-total	1,932	53.0	577	50.9
Total, all firms	3,658	100.0	1,135	100.0

*Excludes farms, a vital segment of agribusiness.
Source: Compiled from *Census of Manufactures:* 1972, Area Series, Louisiana, MC 72 (3)-19, 1975.

billion of sales in 1972. Food stores were the largest category of agribusiness retail establishments. They accounted for about 92 percent of the firms and 86 percent of the employees in 1972.

In conclusion, *the importance of agriculture in Louisiana's economy extends far beyond the farm gate.* There were more than 10,000 agribusiness firms in the manufacturing, wholesale, retail, and service sectors, employing 130,000 workers in 1972. The annual payroll of these firms in the same year was over $794 million, and total sales were in excess of $8.7 billion.

It should be noted that these data do not completely account for all the agribusiness industry in Louisiana. The census data are not well suited for distinguishing agribusiness firms from other types of firms. Furthermore, some large agribusiness complexes are not listed in the census reports. For example, Louisiana has several deep water ports. It has been estimated that more than 30 percent of the total U.S. agricultural exports in 1974, valued

Table 15.—Employment, payroll, and total sales of agribusiness manufacturing and other manufacturing establishments, Louisiana, 1972*

Major Industry Group	Employment		Payroll		Total Sales	
	Number (1,000)	Percent of Total	Million Dollars	Percent of Total	Million Dollars	Percent of Total
Agribusiness Manufacturing						
Food and Kindred Products	28.1	15.6	$197.0	12.3	$1,936.1	17.0
Textile Mill Products	1.3	0.7	7.0	0.4	44.9	0.4
Apparel and Related Products	9.0	5.0	43.8	2.7	132.5	1.2
Lumber and Wood Products	14.7	8.2	90.0	5.6	474.4	4.2
Furniture and Fixtures	1.5	0.8	7.6	0.4	29.5	0.3
Paper and Allied Products	15.5	8.6	161.9	10.1	879.3	7.8
Sub-total	70.1	38.9	$507.3	31.5	$3,496.7	31.0
Other Manufacturing						
Printing and Publishing	7.4	4.1	55.8	3.5	182.4	1.6
Chemicals and Allied Products	24.4	13.6	303.5	18.9	2,604.4	23.1
Petroleum and Coal Products	9.5	5.3	121.9	7.6	2,917.9	25.8
Stone, Clay and Glass Products	6.7	3.7	54.4	3.4	267.1	2.4
Primary Metal Industry	7.3	4.1	75.1	4.7	329.9	2.9
Fabricated Metal Products	12.5	7.0	112.0	7.0	415.3	3.7
Machinery, except electrical	7.0	3.9	59.8	3.7	201.9	1.8
Electric and Electronic Equipment	7.0	3.9	59.1	3.7	301.5	2.7
Transportation Equipment	21.9	12.2	204.7	12.8	487.2	4.3
Misc. Manufacturing	5.8	3.2	48.7	3.0	86.3	0.7
Sub-total	109.5	61.0	1,095.0	68.3	7,790.9	69.0
Total all Manufacturing**	179.6	99.9	$1,602.3	99.5	$11,290.2	100.0

*Excludes farms, a vital segment of agribusiness.

**Data for individual categories do not sum to totals because of rounding error and data withheld from census reports to avoid disclosure of information for individual firms.

Source: *Census of Manufactures:* 1972, Area Series, Louisiana MC 72 (3)-19, 1975.

Table 16.—Number of firms, and employees, payroll, and value of sales for agribusiness firms in the wholesale, retail, and service sectors of the Louisiana economy, 1972*

Sector	Number of Firms	Number of Employees	Payroll ($1,000)	Value of Sales ($1,000)
Wholesale Sector[1]				
Lumber, Plywood & Millwork	154	2,613	$19,856	$250,224
Farm & Garden Machinery & Equip.	216	2,035	13,934	142,369
Groceries & Related Products	802	18,041	75,647	1,859,807
Farm Product Raw Materials	145	1,563	6,907	754,400
Farm Supplies	332	3,022	12,846	201,105
Sub-total	1,649	27,274	$129,190	$3,207,905
Retail[2] *and Service*[3] *Sectors*				
Nurseries, Lawn & Garden Supply Stores	84	215	989	6,805
Lumber & Other Building Material Dealers	457	4,518	25,811	208,552
Food Stores	6,500	28,928	130,276	1,819,912
Farm Machinery & Equip. Repair	28	133	915	3,711
Sub-total	7,069	33,794	$157,991	$2,038,980
Total	8,718	61,068	$287,181	$5,246,885

[1]*Census of Wholesale Trade:* 1972, Area Series, Louisiana, WC 72-A-19, 1975.
[2]*Census of Retail Trade,* 1972, Area Series, Louisiana, RC 72-A-19, 1975.
[3]*Census of Selected Service Industries:* 1972, Area Series, Louisiana, SC 72-A-19, 1974.
*Excludes farms, a vital segment of agribusiness.

at $6.9 billion, were shipped through Louisiana ports. Shipping and handling of agricultural exports through Louisiana ports is an important source of employment and income in the state even though data are not available in the census reports.

Other examples of agribusiness firms not included in the data presented above are cotton gins, agricultural financial institutions, aerial applicators, veterinary firms, and oil and fuel distributors. Although the data presented above do not provide a complete analysis of the agribusiness sector in Louisiana, they do indicate the broad scope of its activities. The complexity and the economic importance of agriculture and the vast agribusiness complex that serves the farm production sector and the consumer are often overlooked.

IX. TECHNOLOGICAL AND SOCIAL CHANGE IN RURAL AREAS

Agriculture has undergone significant changes in the last 35 years. Most notable has been the adoption of new technology and the application of improved production practices. Adoption of new technology has been one of the major factors behind the trend toward larger, more efficient farms in Louisiana and the United States, and thus toward lower food and fiber costs than would have otherwise been possible. Adoption of new technology often involves considerable capital investment in new machines and equipment. For the adoption to be profitable, it is often necessary to expand the size of the farm so that the associated fixed costs can be spread over more acres, thus reducing the cost per acre and cost per unit of output.

Farmers adopt new technology because they believe the economic gains associated with adoption will more than offset the additional costs. Technological change ordinarily results in lower per unit costs of production. Assuming market prices do not change over a short period of time, the technological change may increase "short run" profits of those farmers who adopt the technology early. This extra profit is usually only temporary, however. As more and more farmers adopt the technology, the volume of production of the industry will increase, the price of the product will fall, and the extra profit will disappear. Thus, the long run effect of technological change eventually results in lower prices for consumers of farm products. Agricultural technological research by the land grant colleges, government agencies, and others ultimately benefits consumers as much or more than it benefits farmers.

Benefits associated with agricultural technological advances are generally recognized and acknowledged. There are, however, some costs. Because of the interdependent nature of the economy and society, a change in a single sector or institution often induces or contributes to changes in other sectors. In the agricultural sector, improved technology has resulted in fewer, larger, and more mechanized farms. But fewer farms mean fewer farmers, and increased mechanization leads to fewer farm workers, both of which contribute to an erosion of the employment base of rural communities and out-migration of people from rural areas.

However, social and economic problems of rural areas are not solely related to technological changes in agriculture. Advances in education, transportation, and communication networks and a myriad of other factors have also had a considerable influence. The economic and employment base has been affected, and many rural areas have lost some of the vitality associated with large rural populations of the past. Many small rural towns lost their means of sustenance as people left rural areas, and those remaining shifted their purchasing power to larger communities, aided by better

transportation and communication. However, some rural towns have also grown and prospered as a result of concentration and consolidation of rural businesses and services.

Recognition of the special problems of rural communities has led to special government programs to counter these problems. These programs are generally referred to as "rural development programs" and are designed to provide farm and nonfarm employment, income opportunities, and more attractive living conditions in nonmetropolitan areas of the nation. In other words, the programs are designed to help the rural social and economic systems adjust to new farm technology and other changes.

Rural development was initiated in 1955 when Congress first funded the Rural Development Program to stimulate economic development in rural areas with high unemployment or underemployment levels. Since that time, the programs have been expanded in size and scope. The U.S. Department of Agriculture has administrative responsibility for the programs because it possesses the infrastructure required to carry them out.

In Louisiana, as in other states, the Cooperative Extension Service has a leadership role in rural development. Other USDA agencies, such as the Farmers Home Administration and the Soil Conservation Service, are also actively involved. A Rural Development Committee has been established at the state level as well as in each parish. Committee membership includes USDA agency personnel, state and local organizations, and individuals interested in improving the economic and social well being of rural areas.

Rural development programs in the state have demonstrated some successes. For example, both Morehouse and LaSalle Parishes have received national awards for their development activities. Other parishes have also made progress; industries that provide new employment opportunities have been attracted to rural areas, water and sewer systems have been constructed to serve small rural communities, and farmers' markets have been established to help small farmers sell their vegetables and other products. Recreational facilities have been constructed, and drainage systems have been improved. Educational, medical, and transportation services have been upgraded, as have solid waste disposal systems. All of these programs have improved the quality of life in rural communities.

X. SUMMARY

Louisiana's agricultural industry has changed considerably since 1940. Specialization has occurred in crop and livestock enterprises in every area of the state. This specialization has been responsive to environment and changes in physical and economic forces. For example, areas with relatively infertile soil have reverted to forest and livestock production. Crop production, on the other hand, has become more concentrated in areas with more fertile soil. Areas with characteristics required for particular crops continue to specialize in those products.

Farms have become larger in recent years to take advantage of new technology and economies of size. Although the number of farms has declined, this simply reflects the general trend toward larger farms and increased efficiency, and changes in the definition of a farm. Fewer farms do not indicate that agriculture is a declining industry. To the contrary, acreage in crops has increased, as has investment in facilities, machinery, equipment, and operating supplies. The value of output has increased dramatically, reflecting increased physical production of many commodities, particularly soybeans. The combination of agriculture and agribusiness is a growing industry of prime importance to the economy of the state.

Agriculture's increases in yields reflect adoption of new biological and mechanical innovations to remain competitive. Livestock production has become more efficient. Mechanical harvesting is universal for almost all crops, with the exception of fruits, nuts, vegetables, and strawberries. Labor requirements have declined as a result of mechanization, and costs of production have also been moderated by new technology, resulting in benefits for the consumer.

The most notable change in crop trends has been the dramatic growth of soybean production in Louisiana. Soybeans, an insignificant crop in the 1940's and 1950's, became the most important crop in terms of acreage harvested and value of production in 1976. Traditional crops such as rice, cotton, and sugarcane continue to be important enterprises.

Livestock enterprises, especially the production of eggs and broilers, have experienced some growth. Although the number of milk cows has declined, production has increased because of a large increase in milk production per cow. Cattle numbers and production have been cyclical but generally have increased in importance, with production more than doubling since 1940.

Some commodities have experienced a downward trend since 1940. Most notable among these are corn, strawberries, vegetables, peaches, sweet potatoes, Irish potatoes, swine, and sheep. Changing market conditions and labor intensive production requirements for many of these commodities have contributed to their decline.

Forestry is an important facet of agriculture and occupies about half the land area in Louisiana. Softwood forests, especially pine, are dominant, but hardwood forests are also important as they provide both sawtimber and pulpwood for Louisiana-based industries.

Farm and forest production generate a large part of the economic activity of agriculture. They also give rise to a large agribusiness sector associated with agriculture and forestry. For example, manufacturing firms that process farm and forest products accounted for 47 percent of all manufacturing firms in Louisiana in 1972. They also provided 31 percent of the total employment in the manufacturing sector. Wholesale, retail, and service firms, related in some way to agriculture, employed more than 60,000 workers and paid $287 million in wages in 1972. Generally speaking, the agriculture-agribusiness sector and the oil and gas industry provide the major economic base for the economy of the state.

The outlook for Louisiana agriculture is promising. Good, productive farmland is a major renewable resource. A continuing increase in world population in the foreseeable future means a continuing and increasing demand for the products of our land resource.